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TANGANYIKA TERRITORY

Annual Medical and Sanitary Report

For year ended 31st December 1935

Including the Annual Report of
the Medical Laboratory,
Dar es Salaam

1937
DAR ES SALAAM
PRINTED BY THE GOVERNMENT PRINTER
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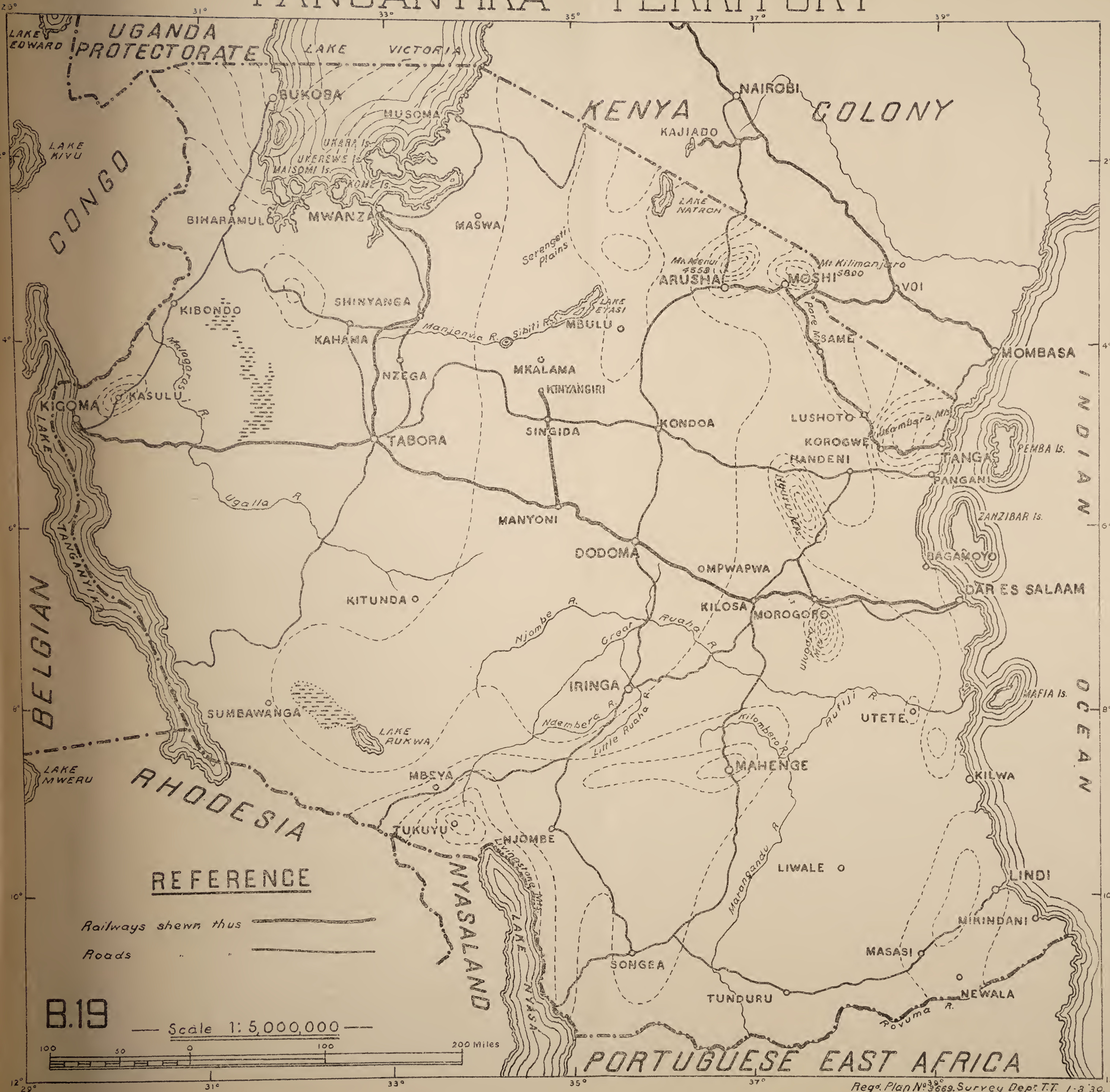
TANGANYIKA TERRITORY



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OFFICE OF THE
DIRECTOR OF MEDICAL SERVICES,
DAR ES SALAAM,
TANGANYIKA TERRITORY.
19th January 1937

Sir,

I have the honour to submit, for the information of His Excellency the Governor and for transmission to the Right Honourable the Secretary of State for the Colonies, the Medical Report on the health and sanitary condition of the Tanganyika Territory for the year 1935, together with the Report of the Medical Laboratory at Dar es Salaam.

I have the honour to be,
Sir,
Your obedient servant,
R. R. SCOTT,
Director of Medical Services.

THE HONOURABLE
THE CHIEF SECRETARY TO THE GOVERNMENT,
DAR ES SALAAM.

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ANNUAL REPORT OF THE LABORATORY DIVISION.

(*By* DR H. J. O'D. BURKE-GAFFNEY, *Senior Pathologist.*)

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TANGANYIKA TERRITORY

Annual Medical Report for 1935

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INTRODUCTORY.

The general health of the territory during 1935 showed no unusual features. There was a reduction of some 3,000 in the number of patients treated at hospitals, but an increase of 9,577 of those treated at tribal dispensaries where increasing supervision by medical officers and improvement of the efficiency of the tribal dressers is gradually being attained.

Of dangerous infectious diseases, smallpox of a non-fatal type continued in the Southern province, and cerebro-spinal fever increased from 55 to 153 cases, in the Bukoba and Mwanza districts of the Lake province. One fatal case of plague was recorded.

Trypanosomiasis continued to show a satisfactory fall but the heavy incidence of malaria at Moshi gives cause for concern in view of the danger to natives from the higher slopes of the mountain who contract severe and sometimes fatal infections when they visit the town and plains. The problem is an important one in relation to the settlement in the lower areas of mountain natives for whom land is insufficient in the higher and non-malarious parts.

Enteric fever, as is only to be expected from the conditions under which alluvial gold digging is carried on, is a serious danger in the Lupa, where a medical officer of health was posted in September. Europeans visiting the area without having taken the precaution of inoculation against the enteric group of diseases, run a serious risk of contracting this dangerous infection.

The worm diseases take a heavy toll in disability ; and educational measures for raising the standard of rural sanitation need the fullest support of all members of the community. Individuals can do much in a quiet way to distribute knowledge of the means of spread and serious effects of these conditions.

Syphilis and yaws contribute no less than 46 per cent of our patients and absorb a large proportion of our resources in treating some 95,000 cases. The former disease is more common in the Lake province and the latter in the Southern ; but the factor causing this difference is not yet apparent.

Tuberculosis is a dangerous and fatal disease in East African natives and appears to have a heavier incidence where density of population favours closer contact of sick and healthy. The existence of bovine infection has been established throughout the Iringa province by the Director of Veterinary Services. It has hitherto been thought that bovine infection was of rare and sporadic occurrence, and it is still believed to be rare in zebu (humped) cattle outside this province.

The importance of reducing ædes mosquito infestation in the towns is being kept in view in connection with yellow fever prevention ;* and it is pleasing to record that the finding of ædes larvæ on dhows in Dar es Salaam harbour has been reduced from a mean index in 1934 of 8·88 to one of 4·38 in 1935. More intensive methods will be necessary to reduce breeding of these mosquitoes both on dhows and in domestic water containers in the towns particularly on the coast; and both natives and non-natives must be persuaded to take a greater personal interest in this matter on their own premises.

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*See note on International Convention for Aerial Navigation, page 18.

The general health of European and Asian officials as judged by the hospital returns shows no significant change; but it is regrettable to record that thirteen deaths of European and Asian officials occurred during the year as compared with three during 1934; the number of officials invalided to the United Kingdom was slightly reduced. In three cases only were death or invaliding ascribable to tropical disease, in each case to blackwater fever.

The average number of days lost through sickness per official resident fell in the case of Europeans from 7·41 to 6·84; and in the case of Asians rose from 4·89 to 5·02.

The department sustained a severe loss by the deaths of three of its members whose services were greatly valued; Dr J. W. Graham, M.C., whose careful work and interest in teaching the African personnel were widely recognized; and compounders L. M. Dass and Mehtab Singh, both of whom had long and efficient service to their credit.

It is my sad duty also to record the death on the 10th December of Dr A. H. Owen, whose departure on leave pending retirement only took place on the 19th November 1934. His retirement took effect from the 1st March 1935. An obituary notice appeared in the *East African Medical Journal* for January 1936.

Other retirements, resignations and invalidings are recorded at pages 58 and 59.

* * * *

I wish to acknowledge the kindness of Dr Madeleine Harvey, formerly a member of the medical staff, in voluntarily supervising the medical inspection of the children at the Government Central School, Dar es Salaam. Her comments on the improvement in the cleanliness of the pupils and on under-nourishment are included in the extract from the senior health officer's report. It is very much to be regretted that the staff does not permit of close attention being given to this branch of the work in the larger schools throughout the territory.

The department continued to receive valuable help from the Colonial Development Fund in the shape of grants towards malaria, tuberculosis and trypanosomiasis research. The work carried out under these grants consists of both survey and pure research and results are being obtained which should prove of value not only to this territory but to all those parts of Africa where these diseases are found.

The visit of Sir Malcolm Watson in April focussed public attention on the economic loss to the territory caused annually by malaria, and we were privileged to have his advice and help in several problems of malarial drainage which were engaging attention at the time, particularly in connection with the scheme for anti-malarial drainage at Dar es Salaam which he was good enough to examine in detail both on paper and in the field.

* * * *

The scheme of decentralization of the administrative work of the department has gone ahead and arrangements were made for the senior medical or health officers in the Lake and Tanga provinces and the sleeping sickness officer in the Western province to assume responsibility for government medical work in their provinces during 1936, and to co-ordinate that work with that of the native authorities and missions as far as possible.

Closely associated with decentralization is the improvement of the efficiency of the tribal dressers; and this is fully realized by the medical staff and arrangements are in hand, particularly in the Lake and Western provinces to provide fuller courses of training for these men and to aim at a much higher standard in the tribal dispensaries. But the association of the government medical staff with the tribal dressers does not end with their training; and it will be impossible for them to function efficiently unless more visiting of the dispensaries can be carried out; and by that I do not mean a flying visit of inspection but a visit lasting at least twenty-four hours, preferably at regular intervals and after adequate notice; so that the visiting officer may see how the work is really being conducted, and the country people may know that there is really a European behind the new methods of the African dresser, and ready to help him in cases of difficulty.

* * * *

The medical work in certain of the provinces is described in extracts from the reports of the health officers in Part III, page 37; the good work done in certain of the others is mentioned in the annual reports of the provincial commissioners.

In the Central province successful concentrations of the "fly-free island" type to prevent the incursion of sleeping sickness have been established on the line of the new Itigi-Lupa road in Manyoni district; and extensive settlement-clearings were made in Singida and Mkalama.

In the Ulanga district of the Eastern province, formerly part of the Mahenge district, the excellent work of the district officer and his wife, both of whom are trained anthropologists, in connection with education of the people in infant hygiene and hookworm prevention call for special mention. At the same time valuable sociological information relating to the native population in the fertile but unhealthy Kilombero valley in this district is being collected by these indefatigable workers.

In Iringa four preventive sleeping sickness concentrations were formed on the Lupa-Tabora road, containing some two thousand families.

The medical officer has referred to the unfavourable effect which the climate of Iringa appears to have on the nervous system. Irritability, neurasthenia and neuritis appear to be unduly prevalent; and it is thought that the wind which blows so constantly for nine months of the year, combined with the altitude, plays some part in producing these conditions. He refers also to the undue prevalence of malaria, much of it carried by mosquitoes bred in man-made excavations; and he draws attention to the erosion which has taken place in the native town as a result of lack of proper road drainage.

The improvement of the medical services in the Lupa goldfield has been under prolonged consideration and as a first step a health officer was provided for the area and took up his duties in September. Extracts from his report are printed at page 50. Legislation to provide for the sanitary control of labour camps in controlled mining areas was promulgated.

Estimates for the provision during 1936 of a medical officer to supervise the dispensary work and to assist employers to carry out their obligation to provide medical attention for their labourers, and for the establishment of a clearing station and four additional dispensaries were approved by Legislative Council at the November session.

Advantage was taken of the presence of Dr A. J. Orenstein, C.M.G., Chief Medical Officer to the Rand Mines group, to obtain his advice on matters concerning the health of labour on the goldfields. We were indeed fortunate to secure the help of an expert with such unique experience of the medical care of labour in the tropics.

The conditions on the field are very far from satisfactory, particularly in connection with the securing of an adequate diet for their labour by the small alluvial diggers, who shift from place to place at frequent intervals; and who seem to be able to secure labour in spite of the most inadequate housing and rations.

In the Lake province large preventive sleeping sickness concentrations were effected in the Karagwe chiefdom of Bukoba, where one thousand three hundred families were moved northward away from the probable source of infection during the latter part of the year; and the consolidation in their new areas of the five thousand two hundred families moved in Biharamulo district in 1934, is a matter for satisfaction.

The agricultural shows which have become such a feature in this province afford an excellent opportunity for health propaganda, particularly in the direction of showing the close connection between agriculture, animal husbandry and better health.

The medical facilities provided by government in the densely-populated districts of Usukuma are far from adequate; but the native authorities with the strong support of the administration have set about to remedy the deficiency in the best possible way, by training their own young men to become more efficient as tribal "medical auxiliaries;" and an additional medical officer has been posted to Mwanza to ensure the continuity of their medical training. The native authorities have provided an excellent new out-patient department at Mwanza hospital, in addition to the buildings of the medical school proper, which affords greatly improved facilities for better teaching. The medical schools at Bukoba and Musoma were completed during the year.

In the Southern province the continuance of the outbreak of smallpox in the Masasi and Mikindani districts entailed heavy work in its suppression, for which we owe a deep debt of gratitude to the administrative officers and mission medical staff of the U.M.C.A., and Benedictine Roman Catholic missions, who assisted in the organization and execution of the vaccination campaign. Some 110,500 vaccinations were carried out in the districts. The disease was unusual in type, in that severe confluent cases were seen although a negligible number of deaths have been recorded.

The prevalence of yaws in this province is unduly high and the factors causing this merit investigation. The eastern part of the province is not favoured with plentiful supplies of food particularly as regards beef and dairy produce, owing to the prevalence of fly; the shortage of meat and vegetables is a permanent source of complaint by residents of Lindi. It may be found that there is some correlation between the high yaws incidence and an under-nourished population.

The water supply for the residents of the Makonde plateau is another matter of great difficulty; and profoundly affects the well-being of the people of Newala.

In the Tanga province the provincial commissioner has drawn attention to the difficulty of improving the dietary of the large number of poorly-paid wage earners in the area. He points out that twelve to fifteen shillings a month do not go far towards providing more meat or milk for the worker and his family.

Efforts have been made to improve the food situation in Handeni, especially by planting edible canna and mangoes; and the growing of the former has also been stimulated in the Usambara district.

In Pare district great interest in health work, especially in the direction of improved housing, is taken by the native authorities; a demand for female health teachers has actually arisen.

The new maternity clinic at Tanga, the need for which has been so great since the old clinic was destroyed by floods, was opened at the end of the year.

In the Western province the policy of concentrating the population as a preventive measure against sleeping sickness has been followed from its inception and in spite of the inevitable mistakes which were made in the early days of developing the procedure, it has succeeded beyond expectations. The provincial commissioner writes:—

> "There is no longer any question about the economic and social value of properly organized concentrations. The natives within them are prosperous and contented, and they can be extended by the addition of more people without any difficulty when this is considered advisable . . . . But proper organization, calling for careful consideration of the economic and tribal problems involved, is necessary . . . . For success, team work by administrative, medical and agricultural officers is essential, and commonsense enough to profit by the mistakes and experience of previous efforts. The administration of well-organized concentrations is easy and the advantages to Government of the policy are very great."

At Kigoma the prevalence of "spirillum" ticks was commented on by the medical officer. The police lines and Mwanga village are heavily infested with this dangerous arthropod for which only drastic measures of reconstruction appear to suffice. An extended water supply for the native town and buildings in the higher part of the town is badly needed.

* * * *

Increased financial provision was made for the service of the department to the extent of £6,153, of which sum more than half was expended on medical stores; measures for the prevention of sleeping sickness and increased travelling and freight on the railway accounted for the greater part of the remainder.

Certain changes in the titles of the senior posts were agreed upon by the Secretary of State: the post of Deputy Director of Sanitary Service was abolished and replaced by an Assistant Director of Medical Services; that of Deputy Director of Laboratory Service by a Senior Pathologist and the post of Assistant Bacteriologist was abolished. An additional appointment of Specialist (for surgical work) was created, and an extra medical officer was authorized for the Lupa. The post of Assistant Matron was created for the Sewa Hadji hospital and the number of senior nursing sisters reduced by one. The post of Assistant Medical Instructor was abolished.

* * * *

The destruction of household refuse by burning is being discontinued in some townships and controlled tipping substituted, notably at Dar es Salaam (partial), Tanga, Moshi and Arusha. No increase in fly breeding or rat breeding has been observed so long as the tipping has been properly controlled; and the method allows for more rapid reclamation of low-lying areas than is possible if only the ash from incinerators is used for the purpose.

As a result of further tests in Tanga harbour it was found necessary to provide additional funds for the extension of the sewerage scheme; a sum of £21,000 from loan funds has now been provided for these works.

* * * *

The revival of trade with consequent increased construction of new buildings in the Dar es Salaam bazaar which was apparent by the end of the year renders the early construction of the sewerage works for that town more necessary than ever; the urgency of this work is recognized, but its magnitude has hitherto made the provision of funds impossible.

* * * *

A satisfactory arrangement has been concluded with the Director of Agriculture, Zanzibar, and the Director of Veterinary Services of this territory whereby the chemists attached to those departments and our own carry out urgent chemical analyses during the absence of one of them on leave. Our thanks are due to the Directors who agreed to the proposals, which have already proved their value in practice.

It is most regrettable that it has not yet been found possible to carry out the reconstructions and extensions at the main laboratory and animal houses that have been so long required. A certain amount of routine pathological work has been transferred to the newly opened clinical laboratory at the Sewa Hadji hospital; but the total volume of work has greatly increased and the accommodation is insufficient. The routine examinations in the whole division showed an increase of 40 per cent over those for 1934.

A beginning has been made with the typing of blood of members of different races in Dar es Salaam, with the object of building up a transfusion service.

Katathermometer readings taken in the Dar es Salaam gaol showed the ventilation of certain cells to be very deficient.

The analytical chemist and the chemist of the Veterinary department have collaborated in an examination of local milk and ghee in an endeavour to fix standards for these commodities which will give a more accurate basis for the estimation of the degree of adulteration than we possess at present.

An examination of sixty-nine specimens of native beer as supplied in Dar es Salaam showed the alcohol content to vary between 2·4 and 4·8 per cent by weight, the mean being 3·6 per cent.

Further work has been carried out which reveals the importance of the thorough study of native medicines and poisons, a number of which have been shown to be exceedingly toxic and others to have potential use in medical practice. Valuable assistance in this work has been received from the East African Agricultural Research Station at Amani, and the results already obtained have proved useful in the investigation of poisoning cases.

Valuable work on brucellosis has been carried out by Dr D. E. Wilson, who himself contracted undulant fever in the course of the investigations. The work has shown that a fever in human beings caused by an organism resembling that of abortus fever in cattle, exists in several parts of the territory, as well as a variety due to *Brucella melitensis*, the organism causing ordinary undulant fever.

An investigation of the extent of pollution by hookworm of the Dar es Salaam foreshore was undertaken in collaboration with the medical officer of health. Results show that a large percentage of the specimens of fæces collected on the beach at sewer outfalls and elsewhere contain hookworm ova; but it is too early to draw conclusions from these findings.

The lines of future development of the department's activities were indicated in the report for 1934. Circumstances do not admit of drastic changes and we must proceed slowly with our decentralization. It is expected to be able to report further progress in 1936.

There are two lines of research which should well repay their cost, viz. schistosomiasis, and the "spirillum" tick, *Ornithodorus moubata*, the carrier of Central African relapsing fever. Of the former disease 4,499 cases were treated, the incidence being particularly heavy in the Lake province. We know little of the invertebrate hosts of this disease in this country and until our knowledge is more precise we cannot give advice, except on general lines, on how to avoid infection, nor can we take active measures against the intermediate host of the worm.

In the case of *Ornithodorus moubata* what is needed is research directed against the tick itself with a view to finding a method for its eradication from infested buildings. Owing to its tenacious hold on life and its ability to live for years without food it is most difficult to be sure that a stone building once infested has been freed by ordinary methods of attack; while a house of native construction is even more difficult to deal with.

This point leads me to mention the very great importance on general grounds of raising the standard of housing of the native population. This is only one link in the chain of social betterment which it is our aim to forge, but it is one with which the medical department is particularly concerned.

The Director of Medical Services of Kenya in his "Book of Civilization" has shown the way in which sound, inexpensive houses can be built in a progressive native community under sympathetic guidance; while the district officer, Ulanga, has evolved a small two-roomed house of burnt brick at a negligible cost. The matter is intimately connected with the desire to secure a rural population which is anchored to the land in a more permanent manner than has been customary in the past; and to raise the standard of living by improved agriculture and animal husbandry through the use of modern methods of rotation of crops and manuring instead of the shifting cultivation hitherto general, with its associated temporary dwelling, dark, damp and infested with biological matter inimical to man.

I.—ADMINISTRATION.

(A) General.

1.—*Staff.*

(a) Tables showing the authorized establishment of the department and details of appointments and casualties are given on pages 57 and 58.

(b) *Courses of Instruction attended in Europe and Academic Distinctions awarded.*—During their leave in Europe five medical officers attended the course of instruction at the Central Medical Establishment, Royal Air Force, for training in the medical examination of candidates for flying certificates.

Dr C. F. Shelton attended a course in anæsthetics from 30th September to 8th November 1935, at the Cancer Hospital, London.

Dr J. H. McDonald attended a course in dietetics at the Rowett Institute, Aberdeen.

Dr N. Chilton took the course for the first part of the D.P.H. at the Royal Institute of Public Health.

Dr A. McA. Blackwood attended a course of instruction in psychological medicine at Glasgow University.

Dr J. W. Walker received the Diploma of the British College of Obstetricians and Gynæcologists at London University.

Mr R. B. Owen obtained the Tropical Hygiene Certificate of the Royal Sanitary Institute.

Mr H. Cooper attended a course for the Certificate of Tropical Hygiene of the Royal Sanitary Institute.

Dr D. B. Wilson spent three months with the Central Malaria Bureau in India, the cost being met by a grant from the Trustees of the Carnegie Corporation.

(c) *Honours.*—The following honours were graciously bestowed by His late Majesty King George V on members of the department :—

Birthday Honours List:

O.B.E. Dr J. F. Corson, M.B.E., Medical Officer.
M.B.E. Miss M. Donald, Senior Nursing Sister.

Silver Jubilee medals were awarded to the following members of the department :—

Dr R. R. Scott, M.C., Director of Medical Services.
Dr G. Maclean, O.B.E., Sleeping Sickness Officer.
Dr G. R. C. Wilson, Senior Medical Officer.
Dr J. F. Corson, O.B.E., Medical Officer.
Mr H. M. Fisher, Senior Dental Surgeon.
Mr C. N. Rowe, Senior Sanitary Superintendent.
Mr J. L. Mason, Chief Clerk.
Mr H. W. Hassard, Medical Storekeeper.
Miss B. G. Allardes, M.B.E., Matron.
Miss M. Donald, M.B.E., Senior Nursing Sister.
Mr B. G. Pandit, Assistant Surgeon.
Mr J. de Souza, First Grade Asian Clerk.

Bwana Maynard Mbella, African Dispenser.
Bwana Dunstan Minikwa, African Dispenser.
Bwana Thomas P. Chisunga, African Urban Sanitary Inspector.
Bwana Juma bin Abdullah, Sleeping Sickness Supervisor.
Bwana Juma bin Masiba, Head Hospital Orderly.
Bwana Ali bin Nyirenda, Head Hospital Orderly.
Bwana Ngalayi Tanaki, Head Hospital Orderly.
Bwana Saidi bin Johana, Head Hospital Orderly.

2.—*The Medical Services of the Territory.*

The population of the territory as recorded in the Census, 1931, numbered 5,022,640, spread over an area of 366,632 square miles, and having an average density of 13·7 per square mile. There are, however, many square miles which are uninhabited. Of the provinces the Western has the lowest density—6 per square mile; and the Lake the highest—32·6 per square mile.

There are twenty-nine executive medical and health posts, providing one government medical officer to 173,194 persons.

A sum of £190,928 was provided in the estimates for ordinary recurrent expenditure on medical services, actual expenditure amounting to £193,930 equivalent to 77 cents of a shilling (9¼ pence) per head. The expenditure in 1934 was 74·7 cents. Of this sum about 54 per cent is spent on curative services and 37 per cent on preventive work. In addition a large amount of simple treatment is undertaken by the native authorities through their own dressers; and much good work is done by the missions, on whose staffs there are some fifteen registered medical practitioners who are almost wholly employed on native work.

It is pleasing to record that the construction of a number of additional facilities at native hospitals from funds derived from the unclaimed balances of the former German Savings Bank was authorized. Certain of these were completed by the end of the year and others were in hand. They include a new maternity and child welfare clinic at Tanga, new medical wards at Lindi, Iringa and Tukuyu, a ward for infectious diseases at Mwanza, operating theatres at Malangali, Bukoba, Iringa and other items amounting in all to an approximate expenditure of £6,230.

Bed provision amounts approximately to one per 2,500 of the population, varying from 3,841 in the Lake province to 1,323 in the Eastern province.

Increasing attention is given each year to the medical work in the districts; and the medical staff are required to visit the dispensaries and tribal dressing stations as often as funds permit. Conditions in this territory, where large station hospitals, often accommodating Europeans, have to be kept going by the medical officer in charge of the district, do not make district visiting too easy; and when there are added the long distances, often over roads not passable to motor traffic, and the limited funds still available for travelling, it is not surprising that the sub-stations receive insufficient attention. The remedy can only be slowly applied, by increasing the efficiency of the subordinate personnel at the central hospitals thus freeing the medical officers from much of the routine work which now helps to tie them to their headquarters station, and by providing the means to ensure that every dispensary in the district is regularly visited.

The increased travelling which has been possible during the year for the headquarters staff has brought vividly to light the effects of the depression years on the equipment and furnishing of many of our hospitals. The reduced expenditure on medical supplies which formed a subject for gratification in the 1934 report (page 12) has lowered to a serious extent the standard of hospital equipment; and the word of warning as to the heavier bill for replacements which would have to be faced during the next few years was timely. It is distressing to visit the hospitals and find worn-out beds, bedding and linen which cannot be replaced for lack of funds; and surgical equipment which is much below the standard necessary for hospitals which are mostly teaching centres, in however small a way.

3.—*Assistance to Missions for Medical Work.*

There has been no alteration in the policy set forth in previous reports. Drugs and equipment to the value of £258 were supplied to missionary societies for treating specific diseases affecting the public health such as hookworm, leprosy, sleeping sickness, yaws and syphilis. Additional financial assistance amounting to £992 was given to certain missions actively engaged in maternity and child welfare work.

Closer co-operation with the missions doing medical work is aimed at; and though it is not usually possible to meet the requests for assistance in the shape of funds, drugs and equipment, much assistance is given and received by the personnel and relations generally are satisfactory.

Courses of training for African dispensers, conducted in the vernacular, are held by two missions : and the department assists these efforts, which cannot fail to be of great value to the general public in the areas in which their students will function, to the fullest extent possible. In one case it was found possible to arrange for the mission medical officer to attend a ''refresher'' course in surgery at the Sewa Hadji hospital at Dar es Salaam; and assistance in the conduct of examinations is always available.

4.—*Native Staff and Tribal Dispensaries.*

Increased attention has been given to the improvement of the technical training of the various grades of African medical personnel.

Revision courses have been held in Dar es Salaam for African dispensers, and dispenser-learners have also received training in conjunction with these courses. The former are medical department employees whose duties include minor medical and surgical treatment in addition to dispensing. The learners are boys from government schools, who have received a year's secondary education, including some elementary chemistry, physics and biology, before entering the class. It has been found that learners without such a grounding in English and elementary science cannot appreciate fully the training given.

During the year, government has published a small text-book on preventive medicine and a revised handbook for tribal dressers, while a text-book on pathology is in course of printing. Other books on the subjects contained in the medical syllabus are in preparation.

Very useful books in Swahili on medical subjects have also been produced at the Benedictine Mission at Ndanda. These are produced by a duplicating process, but are properly bound and the illustrations coloured by hand with crayons.

The course of training given to our dispensers is of a less advanced type than that given to medical assistants at Mulago in Uganda but government has provided funds to enable boys of exceptional ability, who desire to follow medical work, to enter Mulago. Four such students have already gone to Uganda for the course.

The lowest grade of independent medical unit in the territory consists of the tribal dressers maintained by the native authorities. These men, though literate, do not speak English and their duties comprise the treatment of minor ailments, administration of medical and surgical first aid in village communities, and the recognition of serious cases of illness requiring transfer to dispensary or hospital. The necessity of increasing the efficiency of these dressers has been fully appreciated. During this year a training centre, consisting of dormitory and refectory, laboratories and lecture theatre, has been constructed in connection with Mwanza hospital and a course of instruction lasting eighteen months is being given by the government medical officers at the hospital. A fine new out-patient department where systematic clinical instruction is given has also been built. Eighteen students have completed their first year's training.

The funds for erecting and equipping the buildings have been supplied by the native authorities of the Lake province and the dressers trained at this centre will subsequently be employed by the native authorities who have provided for their training. Well-educated recruits have been obtained and there is every prospect that the dressers, or medical auxiliaries, trained here will reach a much higher standard of efficiency than the majority of the natives at present employed in such posts.

Medical training schools on a smaller scale where the course will last three years have been erected and equipped by the native authorities at Bukoba and Musoma, and ten students were already in training at the former station at the end of the year.

5.—*Medical Registration Board.*

The tables below show the number of medical practitioners and dentists registered in the territory, and the nature of their qualifications, together with the alterations effected during the year.

TABLES SHOWING THE NUMBER OF PERSONS REGISTERED AS MEDICAL PRACTITIONERS AND DENTISTS ON 31ST DECEMBER 1935.

Medical Practitioners.

	British Qualifications			Qualifications not registrable in British Register	Total
	Government Service	Private or Missionary	Not resident	Private or Missionary	
British ...	48*	16	13*	—	77
British Indian	2	5	6	—	13
Goan	—	7	1	—	8
German ...	—	3	—	16	19
Swiss	—	—	—	1	1
United States	—	—	—	3	3
Greek	—	—	—	1	1
Total ...	50*	31	20*	21	122

*Two medical practitioners hold dental qualifications in addition and appear in both lists.

Dentists.

	British Qualifications			Foreign Qualifications	Total
	Government Service	Private or Missionary	Not resident	Private or Missionary	
British ...	2*	1	3*	—	6
German ...	—	—	—	2	2
Japanese ...	—	—	—	1†	1
Total ...	2*	1	3*	3	9

*Two medical practitioners hold dental qualifications in addition and appear in both lists.
†Registered in Foreign List of British Dentists Register.

TABLE SHOWING THE NUMBER OF PERSONS WHOSE NAMES WERE ADDED TO, OR REMOVED FROM THE REGISTER DURING THE YEAR 1935.

	Added		Total	Removed		Total
	Medical	Dental		Medical	Dental	
British	4	—	4	2	—	2
British Indian ...	2	—	2	—	—	—
German	5	1	6	—	—	—
Swiss...	1	—	1	—	—	—
United States ...	1	—	1	—	—	—
Total...	13	1	14	2	—	2

In addition to the registered medical practitioners shown in the table above fifty-nine persons are licensed to practise medicine in the territory under specified conditions; the licences require renewal each year. Of these fifty-three are in government service, and six are privately employed by commercial undertakings or charities.

6.—*Aerial Transport.*

During the year the following aeroplane journeys were made on medical grounds :—

(a) By medical practitioners in emergency illness ...	4
(b) By medical practitioners for other reasons ...	22
(c) By patients in emergency illness	4
(d) For other cognate purposes	2

Outward and return journeys on consecutive days are classed as a single trip. (b) includes visits of inspection and (d) includes despatches of serum by specially chartered aircraft.

The courtesy and ready assistance in emergency afforded by Messrs Wilson Airways again call for special acknowledgment. The aeroplane as an efficient means of expediting medical treatment in Africa has amply proved itself. The number of journeys made on medical grounds has almost trebled during the year.

7.—*Publications.*

The following medical pamphlets were published by Government and distributed to officials, missions and others to whom they might prove of value :—

(a) The Use of Vaccines and Sera (Medical Pamphlet No. 12, six pages).
(b) Recent Work on the Treatment of Malaria (Medical Pamphlet No. 13, eight pages).

(c) Notes on Camp Hygiene for Employers of Labour (Medical Pamphlet No. 14, four pages).
(d) Blackwater Fever (Medical Pamphlet No. 15, two pages).
(e) The Morphology and Staining Reactions of Local Malarial Parasites (Medical Pamphlet No. 16, four pages).

(B) LEGISLATION.

The following legislation affecting public health was promulgated during the year :—

The Dangerous Drugs Ordinance, 1935. No. 28 of 1935.—An Ordinance to consolidate the law regulating the importation, exportation, production, manufacture, sale and use of opium and certain other dangerous drugs and substances, and to make further and better provision for the control of the external trade in dangerous drugs.

The Dangerous Drugs (Internal Control) Rules, 1935. Government Notice No. 104 of 1935.—These rules are for controlling the manufacture, sale, possession and distribution of dangerous drugs.

The Infectious Diseases (Amendment) Ordinance, 1935. No. 36 of 1935.—An Ordinance to amend the Infectious Disease Ordinance so as to define the nature of illness which requires notification to the medical authorities, and to take power to declare infected areas and to regulate the entry of persons into and their exit from such areas.

The Infectious Diseases (Amendment) Ordinance, 1935. The Infectious Disease (Declaration of Infected Area) Order, 1935. Government Notice No. 177 of 1935.—The area comprising the chiefdom of Karagwe in the Bukoba district was declared to be an infected area on account of an outbreak of cerebro-spinal meningitis which occurred there.

The Infectious Diseases (Amendment) Ordinance, 1935. The Infectious Disease (Infected Areas) Rules, 1935. Government Notice No. 178 of 1935.—These rules provide for : (1) the inspection of persons entering or leaving infected areas ; (2) the establishment of inspection posts on roads leading to infected areas ; and (3) the examination of vehicles entering or leaving infected areas.

The Extermination of Mosquitoes Ordinance, 1935. No. 40 of 1935.—An Ordinance to prescribe measures for the extermination of mosquitoes. Under previous legislation powers to control mosquitoes existed only within townships and minor settlements. This Ordinance may be applied to any area within two miles of the boundaries of a township or minor settlement and to populated areas outside this limit of two miles.

The Townships Ordinance. The Township (Township Authorities) (Amendment) Rules, 1935. Government Notice No. 77 of 1935.—The township rule relating to the constitution of township authorities was amended so as to provide that, except under special circumstances, the president of a township authority shall be the district officer or a municipal secretary and that the Medical, Public Works, and Lands and Mines departments shall be represented on the authority.

The Townships Ordinance. The Township (Amendment) Rules, 1935. Government Notice No. 133 of 1935.—(1) The township rule relating to the service of nuisance notices was amended to allow notices to be served on the owner of land or premises occupied by more persons than one. (2) Barbers' shops were added to the list of premises which are required to take water from the public supply where such exists. (3) For the township rule requiring eating houses to be licensed and to comply with the medical officer of health's requirements a new rule was substituted with similar provision to apply to the premises of butchers, greengrocers, fishmongers, barbers, restaurant-keepers and to places where food is prepared. (4) In the sub-rule relating to the inspection of carcasses in slaughter yards, provision was made to allow officers other than medical officers of health and Veterinary officers to inspect and certify carcasses. (5) A new rule was made requiring market stall-holders to maintain their stalls and immediate surroundings in a proper state of cleanliness.

The Ports Ordinance. The Ports (Pratique) (Amendment) Rules, 1935. Government Notice No. 107 of 1935.—The port rule relating to the granting of pratique to ships was amended so as to allow ships from clean ports and without sickness on board to proceed to work without having obtained formal pratique, provided that no passengers should land without permission of the port health officer.

The Mining (Controlled Areas) Ordinance, 1932. The Mining (Controlled Areas) (Public Health) Regulations, 1935. Government Notice No. 117 of 1935.—These regulations give powers for sanitary control of labour camps, water supplies, animal enclosures, slaughter of animals and burial grounds in areas declared as controlled areas under the Ordinance. Notification of illness of unusual prevalence or otherwise characteristic of an infectious disease is required under the regulations.

The Minor Settlements Ordinance, 1931. The Minor Settlement Rules, 1935. Government Notice No. 119 of 1935.—These rules give power to control the growing of crops, dangerous and offensive trades and common lodging houses in minor settlements; and certain gross nuisances are made punishable.

Under General Notice No. 1134 of 1935 the International Sanitary Convention for Aerial Navigation was applied to the territory as from the 1st August 1935. The convention defines the sanitary measures which may be taken to prevent the spread of infectious disease by means of aircraft and, since Tanganyika is a country in which conditions permit of the development of yellow fever, the provisions of the convention relating to this disease are of considerable importance.

(C) Financial.—*Expenditure.*

The estimates of expenditure for the year 1935 provided the sum of £190,928, equal to 11·7 per cent of the total expenditure of the territory on ordinary and recurrent services, for the Medical Department, a reduction of £7,076 as compared with the provision for 1934. The latter sum cannot, however, be regarded as a true reduction of the cost of medical services, since the sum of £6,252 for passages was removed from the medical estimates and charged to miscellaneous services. In actual fact it was found necessary to provide additional funds before the end of the year when it became apparent that stocks of medical stores and equipment had fallen below the margin of safety; and the actual expenditure for the year amounted to £193,930, an increase of £3,002 over the provision made.

On the revenue side medical receipts showed a gratifying, if small, increase to the extent of £787 over the estimated amount. (See table at page 60 for financial details.)

Medical Stores and Equipment.

As explained above it became necessary during the year to apply for further funds for the purchase of essential drugs and dressings. The sum of £2,343 was provided by special warrant for the purpose : but even with this substantial addition it has not been possible to bring the stocks up to the amount which it is considered essential to keep in reserve in a country so distant from its source of supplies as is this. A system of earmarking sums of money proportionate to the estimated consumption of the different stations is being initiated; it is expected that this system will cause indenting officers to give careful consideration to the relative costs of the stores for which they indent and so secure a further degree of economy. But there is no escape from the fact that more patients treated mean greater consumption of supplies, and if the latter cannot by the exercise of the maximum economy be made to suffice for the treatment of patients, services will have to be curtailed. It is essential that an adequate reserve stock be built up and worn-out articles replaced before any expansion of medical services can be considered.

Financial Summary.

(For details see table at page 60.)

Revenue.

	Estimated	Actual
	£	£
Receipts, Medical*	6,500	7,287
Reimbursements by Railways	2,984	2,984
Total	£9,484	£10,271

Expenditure.

	Approved Estimate	Revised Estimate	Actual
	£	£	£
Ordinary recurrent	190,928	187,883	193,930

	Estimated	Actual
	£	£
Colonial Development Fund:		
Malaria Research Scheme	10,000	6,324
Tuberculosis Investigation	1,753	1,552
Sleeping Sickness Research	1,755	1,840
Total	£13,508	£9,716

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*Does not include £1,100 for bills of health collected by Marine and Customs departments shown in table of financial details.

II.—THE STATE OF THE PUBLIC HEALTH.

1. Attendance at Hospitals.

The figures for new patients attending at the general hospitals during the last five years are given below. These do not include patients treated at maternity clinics, infectious diseases hospitals, sleeping sickness treatment centres, or dispensaries in charge of Africans :—

Year	In-patients	Out-patients	Total
1931	31,743	423,169	454,912
1932	29,250	479,517	508,767
1933	30,680	514,197	544,877
1934	34,332	546,445	580,777
1935	35,206	542,659	577,865

An additional 60,231 cases were seen by members of the medical staff on tour. 142,638 patients were treated at dispensaries staffed by African dispensers; and 32,357 by missionaries supplied with government drugs and equipment.

2. Attendance at Tribal Dispensaries.

The new cases treated during the year numbered 461,097, an increase of 9,577 over 1934. The figures for the last five years are as follows :—

1931	369,735
1932	374,614
1933	402,011
1934	451,520
1935	461,097

Seven new tribal dispensaries were opened in the Eastern, Iringa, Lake, Southern, Tanga and Western provinces during the year and five were closed in the Tanga province. Some alterations in the siting of dispensaries were necessitated during the year.

3. Maternity and Child Welfare.

Maternity and child welfare work is carried on at twelve special clinics by government and missionary societies, some of which receive financial assistance for this work from government. The figures for all clinics are as follows :—

	1931	1932	1933	1934	1935
Total number of confinements admitted to clinics	2,710	2,344	2,673	3,809	3,396
Total number of confinements attended to elsewhere	499	190	66	33	8
Total number of new cases (in- and out-patients) seen at clinics:					
Mothers	30,558	35,283	25,485	28,554	27,365
Children	45,418	46,806	42,932	41,163	40,820
Total number of attendances at clinics:					
Mothers	251,704	273,763	292,916	269,254	204,008
Children	352,155	454,401	485,798	395,648	306,537

The difficulty of obtaining literate native women for training as native midwives has been stressed in previous reports. Six mission-taught schoolgirls have, however, been obtained at Kahama for this work and are undergoing a systematic course of training at the government clinic at that station. A number of literate native women are receiving training at other government and mission clinics, but many years must elapse before the supply of even moderately competent native midwives can approach the tremendous need throughout the territory for work of this nature.

The new maternity and child welfare clinic building erected at Tanga was opened in December 1935. This clinic, as in other cases, is intended not only for maternity cases and the treatment of sick women and children, but also for the training in maternity and child welfare of native women from the town and the out-districts.

4. RETURN OF PATIENTS TREATED IN MENTAL HOSPITALS.

Numbers:—	Dodoma			Lutindi		
	Males	Females	Total	Males	Females	Total
In hospital, 1st January 1935	54	31	85	70	36	106
Admitted during year	47	6	53	20	5	25
Discharged during year (by Board of Visitors)	17	4	21	6	—	6
Escaped	—	—	—	—	—	—
Died during year	16	5	21	11	6	17
In hospital, 31st December 1935	68	28	96	73	35	108

Classification of Admissions:—	Dodoma	Lutindi
Mania	14	8
Melancholia	5	—
Delusional Insanity	5	7
Confusional Insanity	2	1
Dementia	5	1
Epilepsy	7	2
Mental Defectives	8	—
Dementia Præcox	3	2
Paranoia	1	—
Paralysis	—	4
For observation	3	—

Deaths:—

Deaths were attributed to the following causes:		
Heart failure	5	1
Diarrhœa	4	—
Epilepsy	5	—
Mania	2	2
Dementia	1	—
Senility	1	—
Imbecility	1	1
Subtertian Malaria	1	—
Pulmonary Tuberculosis	1	—
Chronic Debility	—	1
Paralysis	—	4
Dysentery	—	1
Phthisis	—	2
"Stomach-dropsy"	—	1
Apoplexy	—	3

Inspections:—	Dodoma	Lutindi
The Director of Medical Services ...	1 visit	—
The Deputy Director of Medical Services	1 ,, ...	1 visit
The Acting Chief Secretary	1 ,, ...	—
The Board of Visitors	12 visits	—
The Senior Medical Officer	38 ,, ...	3 visits
Dr Muller of Bumbuli Mission ...	—	9 ,,
The District Officer, Lushoto	—	3 ,,
The First-class Magistrate, Korogwe ...	—	2 ,,

5. Dental Treatment.

(See report by Senior Dental Surgeon at page 52.)

The following work for officials, their wives and families was performed by the Senior Dental Surgeon, Dar es Salaam :—

Attendances	2,154
Fillings	999
Extractions	684
Root fillings	74
Gum treatment	216
Radiograms	168
Dentures	90
Repairs to dentures	86

6. General Diseases.

Of general diseases the greatest number (89,029) treated was in the group of *Diseases of the Digestive System* : these amounted to 15·37 per cent of the total cases treated. *Diseases of the Skin* and *Cellular Tissue* accounted for 14·60 per cent of cases treated and *Diseases of the Respiratory System* for 12·07 per cent.

The greatest number of deaths recorded was 338 from *Diseases of the Respiratory System.* There were 172 deaths from *Diseases of the Digestive System.*

For details of general diseases see tables at page 63.

7. Infectious Diseases.

Infectious diseases accounted for 35·17 per cent of the total cases and 32·40 per cent of the total deaths among patients treated in government hospitals and dispensaries.

The following table shows the incidence of dangerous infectious diseases since 1931 :—

Year	Smallpox		Cerebro-spinal Meningitis		Plague		Influenza	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1931	1,733	148	4	2	238	172	1,568	22
1932	768	48	7	1	12	10	123	30
1933	626	38	—	—	9	5	—	—
1934	411	37	55	13	—	—	2,600	491
1935	503	4	153	66	1	1	2,819	82

The various infectious diseases are dealt with under separate headings below. The relative numbers of cases of diseases treated at hospitals have been calculated as the percentage of out-patients at any one hospital to total out-patients treated at that hospital.

(1) Blood Inoculation Group.

Malaria.—Forty-five thousand and thirty-seven cases of which 30,066 were subtertian, were treated during the year. The greatest number treated (7,740) in one hospital was at Moshi and the highest relative numbers were in Moshi and Korogwe. Sixty-seven deaths were recorded. The number of cases at Moshi was unusual and amounted to more than the total (6,700) for the two previous years. A whole-time medical officer is enquiring into malaria in the Northern province and has been stationed in Moshi in 1936. Malaria in Moshi is referred to by the medical officer of health, Northern province (see page 43), and in Korogwe by the medical officer of health, Tanga province (see page 40).

Blackwater Fever.—Fifty-seven cases with 22 deaths were reported. Ten cases with five deaths were treated in Dar es Salaam and ten cases with four deaths in Tabora.

African Relapsing Fever.—One thousand three hundred and seventy-four cases were treated of whom seven died. The greatest number treated at a single hospital was 182 at Kigoma and the highest relative numbers were in Morogoro and Kigoma.

Plague.—One fatal case of plague occurred at Iringa. Plague is referred to by the medical officer of health, Lake province, on page 48.

Trypanosomiasis.—The total cases diagnosed during the year numbered 1,075 as compared with 1,475 in 1934. The figures for the past five years are shown below :—

PROVINCE	NEW CASES DIAGNOSED DURING THE YEAR					DEATHS				
	1931	1932	1933	1934	1935	1931	1932	1933	1934	1935
Lake	138	602	623	381	321	64	89	122	102	92
Western ...	1,304	2,251	1,621	1,078	733	477	385	347	282	244
Central	—	—	54	12	17	—	—	6	9	6
Eastern	—	—	—	1	—	—	—	—	—	—
Southern ...	—	5	6	3	4	3	3	3	4	—
Northern ...	—	—	—	—	—	—	—	—	—	—
Total ...	1,442	2,858	2,304	1,475	1,075	544	477	478	397	342

The figures both for new cases and deaths show a gratifying reduction and indicate that effective control is gradually being attained. The policy of concentration of populations from infected forest in clean areas where native agriculture can be successfully pursued, medical treatment afforded, and administrative control readily exercised is being pursued with marked success, especially in the Kigoma district of the Western province.

The apparently high mortality rate (31·8) is due to the number of deaths which continue to occur in relapsed cases of several years standing. A cure can confidently be expected in any case diagnosed and treated within ten days of the onset of symptoms.

(2) Intestinal and Excremental Group.

The Enteric group.—Eighty-six cases were treated in government hospitals of whom six (all enteric fever) died. There were fifty-one cases of enteric fever of which nine were treated at Mbeya, and of thirty cases of paratyphoid B, twenty-five were treated at Morogoro. Besides those treated in government hospitals nineteen cases of enteric fever, most of whom came from the Lupa goldfields, were treated privately in Mbeya.

Dysentery.—One thousand four hundred and sixty-nine cases of which 532 were amœbic, 106 bacillary and 831 unclassified were treated and thirty-three deaths were recorded. One hundred and twenty cases were treated in Arusha of which sixty-five were amœbic and fifty-four unclassified; ninety-nine cases in Kilosa of which forty-seven were bacillary and twenty-nine amœbic; eighty-two cases at Mwanza of which six were amœbic and seventy-five undefined; seventy-seven all unclassified at Mbeya; and sixty-four all amœbic at Dodoma.

Helminth Diseases.

Ankylostomiasis.—Of a total of 11,946 cases the greatest number treated at a single hospital was 1,837 at Kigoma. The highest relative numbers were at Kigoma, Pangani, Tanga and Bagamoyo.

Taeniasis.—Of 14,619 cases treated the greatest number at a single hospital was 4,923 at Moshi and the highest relative numbers were at Moshi and Iringa.

Ascariasis.—Of 10,042 cases, 2,814 were treated at Moshi. The highest relative numbers treated were at Arusha, Moshi, Tukuyu, Mahenge, Usangi and Mwaya. Helminthiasis is referred to by the medical officer of health, Northern province, on page 44.

Schistosomiasis.—Of 4,499 cases, 984 were treated in Mwaya and the highest relative numbers treated were in Kahama 274, Mwaya 984, Shanwa 444 and Maswa 40. Reference is made to schistosomiasis by the medical officer of health, Lake province, on page 49.

(3) Surface Inoculation, Contact and Droplet Infection Group.

Syphilis.—Twenty-four thousand three hundred and thirty-four cases of all types were treated at government institutions and fourteen deaths were recorded. The greatest number treated at a single hospital was 4,063 at Mwanza and the highest relative numbers were at Bukoba, Mwanza, Maswa, Nzega and Shanwa.

Gonorrhœa.—Eight thousand seven hundred and eighty-four cases with seven deaths were recorded.

Yaws.—Seventy thousand seven hundred and sixty-three cases and four deaths were recorded in government institutions. The greatest number treated at one hospital was 8,237 at Lindi and the highest relative numbers were treated at Kasulu, Lindi and Mikindani. The total cases of syphilis and yaws treated at government institutions and at missions to which assistance in the form of drugs is given by government are shown below :—

	Syphilis	Yaws
1930	25,864 ...	137,112
1931	29,662 ...	112,128
1932	35,229 ...	114,115
1933	33,058 ...	109,113
1934	33,701 ...	117,884
1935	34,581 ...	104,611

Leprosy.—There are thirty-one leprosy settlements in the territory with a total of about 3,400 inmates. Eleven of these settlements are controlled directly by government and the remainder by missionary societies. Assistance is given

TABLE SHOWING INCIDENCE OF TUBERCULOSIS AT THE VARIOUS STATIONS IN THE TERRITORY DURING 1933, 1934 AND 1935.

Stations	1933				1934				1935			
	Pulmonary		All other forms		Pulmonary		All other forms		Pulmonary		All other forms	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Arusha	33	4	9	—	36	6	6	—	29	4	48	—
Bagamoyo	13	—	—	—	6	—	—	—	3	—	—	—
Biharamulo	4	2	1	—	37	1	3	—	5	—	1	—
Bukoba	36	3	2	—	43	12	12	1	26	5	4	—
Dar es Salaam:												
European Hospital	3	—	—	—	3	—	—	—	1	—	—	—
Sewa Hadji Hospital	53	1	7	2	55	1	6	1	41	—	6	2
Health Office * ...	58	24	—	—	57	—	—	—	48	—	—	—
Private Practitioners *...	5	—	—	—	9	—	—	—	10	—	—	—
Dodoma	5	—	2	—	12	3	2	—	21	2	2	—
Handeni	—	—	—	—	—	—	—	—	—	—	—	—
Iringa	7	2	5	—	7	1	1	—	7	2	1	—
Kahama	12	1	1	—	10	—	7	—	12	1	—	—
Kasulo	—	—	—	—	2	1	2	2	1	—	—	—
Kibondo	—	—	—	—	12	3	—	—	5	1	—	—
Kigoma	5	1	1	1	4	2	5	3	8	—	1	—
Kilosa	5	2	1	—	12	2	—	—	11	2	—	—
Kilwa	5	—	7	—	2	—	—	—	2	—	2	—
Kondoa	2	—	1	—	6	—	—	—	5	—	—	—
Korogwe	9	—	1	—	7	—	—	—	11	—	1	—
Lindi	20	1	1	—	15	1	4	1	8	3	3	1
Liwale	—	—	—	—	—	—	—	—	—	—	—	—
Lushoto	23	3	12	—	11	3	10	1	5	1	3	1
Mafia	—	—	—	—	8	—	1	—	—	—	—	—
Mahenge	5	—	—	—	12	—	—	—	3	—	—	—
Malangali	7	—	1	—	5	—	1	—	3	1	1	—
Manyoni	—	—	—	—	7	—	—	—	6	1	—	—
Maswa	1	—	—	—	8	2	—	—	7	1	2	—
Mbeya	11	—	10	—	4	1	3	—	5	—	8	—
Mbulu	12	1	20	—	—	—	27	—	1	—	2	—
Mikindani	12	—	—	—	19	—	—	—	10	—	—	—
Mkalama	7	1	1	—	3	—	—	—	5	—	1	—
Morogoro	22	6	1	—	10	2	—	—	17	5	6	—
Moshi...	88	6	15	—	58	7	7	—	96	7	25	2
,, Kibongoto ...	90	6	107	2	162	6	76	2	128	13	181	—
,, District work *	326	—	419	—	661	—	405	—	460	—	446	—
,, Usangi ...	153	—	102	1	111	—	44	—	50	—	53	—
Mpwapwa	2	—	—	—	3	—	1	—	—	—	—	—
Musoma	4	1	4	1	3	1	1	—	7	—	—	—
Mwanza	19	4	10	—	24	3	2	—	19	2	2	—
,, Health Office...	29	4	—	—	24	—	—	—	14	—	—	—
Mwaya	2	—	15	—	5	—	21	—	5	1	25	—
Nzega	11	2	—	—	6	1	1	—	7	2	1	1
Pangani	30	5	11	2	18	2	1	—	17	2	—	—
Shanwa	6	2	—	—	—	—	—	—	4	—	—	—
Shinyanga	1	—	—	—	8	—	—	—	5	—	1	—
Singida	13	2	—	—	17	3	1	—	11	1	—	—
Songea	7	—	7	2	4	2	4	1	5	—	1	—
Sumbawanga ...	8	—	1	—	1	—	3	—	—	—	1	—
Tabora	8	4	4	1	26	1	—	—	28	1	2	—
Tanga	88	7	24	2	100	7	13	—	55	4	13	1
,, Health Office...	56	25	—	—	111	—	—	—	29	17	—	—
Tukuyu	18	—	19	—	14	2	20	1	22	—	14	—
Tunduru	—	—	—	—	2	1	1	—	2	—	1	—
Utete	7	1	3	—	4	2	—	—	1	—	—	—
,, District work*	3	—	—	—	—	—	—	—	—	—	—	—
Total ...	1,344	121	825	14	1,784	79	691	13	1,281	79	858	8

*Not included in Returns of Diseases and Deaths.

to mission-controlled settlements in the form of grants towards maintenance and of drugs and material. A sum of £2,645 was allocated by government for the maintenance of patients.

Smallpox.—An outbreak with low mortality occurred in the Southern province, only three deaths being reported from 438 cases. A similarly mild outbreak continued in the Iringa province from 1934, there being one death among sixty cases.

Tuberculosis.—The tuberculosis research officer travelled through various parts of the territory, making a survey of tuberculosis by diagnosis of cases and by tuberculin tests. Six thousand of the general population were examined and tested.

Tuberculin tests show that a large proportion of children and the majority of adults are infected, and of these the very great majority show no signs which could be considered as those of tuberculous disease. They are infected but resistant. In comparison with the number infected, however, there is reason to believe that the proportion who develop overt and progressive disease is higher than in Europe. The type of disease seen, judged both by clinical and X-ray evidence, is more acute than at home. It is not, for instance, so common in natives to find X-ray evidence of pulmonary tuberculosis in the absence of positive sputum, and it is well known that native positive sputa tend to be very positive. X-ray shows a large proportion of soft pulmonary infiltration which tends to break down with the formation of ragged cavities not surrounded by fibrous tissue, and to spread to the opposite lung.

Tuberculosis returns received from the various stations in the territory show that higher incidence is encountered in certain areas than others.

The districts in which the larger numbers are reported constantly are as follows :—

	Population Density
Moshi, including Kibongoto	77
Arusha	7
Tanga	71
Dar es Salaam	37
Rungwe	111
Bukoba	39
Mwanza	45

These densities are all high, except Arusha, and in that district there are large areas of land uninhabited except for a few wandering Masai, while other parts are fairly thickly populated. Broadly speaking, the heaviest incidence lies in three types of country :—

1. *The coast.*—Low level. Moderate rainfall. Even temperature.

2. *Round the great lakes.*—High level. Moderate rain. Greater range of temperature.

3. *Highland country.*—High level. Heavy rainfall. Considerable range of temperature.

It seems that altitude, temperature and, probably, rainfall have little effect on the incidence. The affected areas, however, are all comparatively thickly populated, living conditions are good so far as the productivity of the land is concerned, and they have all been in contact with foreign influences for many years. Probably, therefore, the main factor in the incidence of tuberculosis is the opportunity for contact afforded by closeness of population.

Two thousand one hundred and thirty-nine cases of tuberculosis were notified during the year. Their distribution is shown in the table.

A focus of bovine tuberculosis exists in the Iringa district.

Influenza.—Over two thousand cases with eighty-two deaths were reported from Tunduru. Non-fatal outbreaks occurred in Kilosa and Tabora.

Cerebro-spinal Meningitis.—An outbreak with 135 cases and 63 deaths occurred in Bukoba district and there were twelve cases with one death in the Mwanza district.

8. Health of The King's African Rifles.

One death among native troops occurred, and sixteen invalidings. Units were stationed at Dar es Salaam, Tabora, Masoko (near Tukuyu), Songea and Arusha during the year. The mean effective monthly strength in Dar es Salaam was 271 with a sick rate of 1·20 per cent: these figures for the territory as a whole being 937 and 2·65 per cent.

9. Health of Prisoners.

The general health of prisoners has been fairly satisfactory. The daily average on the sick list was proportionately less than in 1934 but the admissions to hospital and the deaths per one thousand prisoners were greater. The rise in the number of deaths was mostly due to a high death rate in Tabora prison during the first quarter of the year when thirteen prisoners died; the figures for the remaining quarters being seven, four and two. The matter was made the subject of a special enquiry but no connection between the deaths and residence or treatment in prison was found.

The figures for the last five years are as follows :—

	Daily average number of prisoners	Daily average on sick list	Admissions to hospital	Number of deaths	Deaths per 1,000 prisoners
1931	2,370·00	44·6	1,015	51	24·89
1932	2,417·00	90·3	1,096	58	23·99
1933	2,518·09	82·3	1,231	43	17·07
1934	2,725·01	85·7	1,395	50	18·34
1935	2,602·30	85·0	1,514	67	25·74

10. Port Health Work and Administration.

Routine port health work was carried out as in previous years. The introduction of the Ports (Pratique) (Amendment) Rules 1935 has been referred to on page 18.

The numbers of steamers and dhows given pratique during the year at the different ports are as follows :—

Stations	Steamers	Dhows
Bagamoyo	1	300
Bukoba	52	82
Dar es Salaam	657	1,216
Kigoma	305	—
Kilwa	40	187
Lindi	102	71
Mafia	27	261
Mikindani	62	65
Musoma	74	191
Mwanza	80	1,716
Mwaya	12	—
Pangani	83	180
Tanga	421	349
Total	1,916	4,618

11. SANITATION.

Sewerage.—The townships of Dar es Salaam and Tanga have outgrown the system of sewage disposal by pits which is almost universal in the territory. In both there is urgent need of comprehensive sewerage works. Schemes have been drawn up and funds have been obtained to instal works at Tanga.

Water supplies.—As in former years, the public water supplies of Dar es Salaam, Tanga, Moshi, Iringa, Bukoba, Lindi and Mwanza were satisfactory.

Some houses were connected to the new Arusha supply by the end of the year.

The public supply at Tabora is inadequate for the needs of the town, but measures are being taken to increase it.

A new water supply has been taken from the river at Morogoro, but, in spite of straining and settling tanks, the water still contains suspended earth after the rains.

The quality of the Dodoma supply has been improved by a newly-installed soda-ash treatment plant.

AEDES INDEX FOR 1935.

(The Aedes Index means the percentage of houses inspected in which the larvæ of Aedes mosquitoes are found.)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bukoba	·18	Nil	·49	·46	4·21	1·72	·67	·20	1·38	Nil	Nil	1·01
Dar es Salaam (whole town excluding dhows)	2·23	2·73	4·90	2·79	4·80	3·42	1·90	1·84	2·60	2·87	2·68	3·37
Dar es Salaam Zone I (Residential)	0·19	0·86	5·89	1·43	3·91	3·68	0·75	0·92	·38	1·22	·81	1·72
Dar es Salaam Zone II (Commercial)	1·34	2·77	3·67	2·25	5·15	3·46	1·82	1·12	1·53	2·83	1·59	2·89
Dar es Salaam Zone III (Native Quarter)	4·49	4·01	5·22	4·44	4·72	3·26	2·67	3·08	4·55	3·77	5·56	5·05
Dar es Salaam, Dhows	4·58	3·87	4·49	9·57	5·97	3·38	3·97	2·30	3·7	3·92	3·17	3·64
Kigoma	·70	1·13	·69	Nil	Nil	Nil	Nil	·21	Nil	Nil	Nil	Nil
Kigoma (on ships)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	—	—	—	—
Kilosa	6·9	3·5	7·6	6·4	8·3	6·04	5·12	4·86	4·53	5·5	4·7	5·02
Kilwa	4·6	3·4	3·9	9·3	6·2	1·2	4·7	3·6	7·3	3·6	6·5	4·7
Lindi	5·11	5·70	4·90	6·01	6·2	9·8	7·5	5·5	7·46	5·10	6·14	5·51
Mikindani	·74	1·22	1·08	·62	·75	·51	·62	Nil	5·0	·86	·85	·75
Morogoro	·38	·44	·90	·39	·29	1·08	1·49	Nil	Nil	1·33	·29	3·44
Moshi	Nil	Nil	·46	1·3	5·71	4·1	2·5	1·8	·14	1·13	1·47	·34
Mwanza	0·5	0·6	0·8	0·9	0·5	0·5	·10	0·2	·4	·3	·48	·75
Pangani	6·0	3·48	5·31	6·27	5·5	6·48	4·68	5·58	3·23	5·0	5·85	2·20
Shinyanga	5·3	16·66	16·0	14·0	15·44	18·79	16·66	8·66	10·74	6·0	7·95	4·64
Singida	Nil	Nil	Nil	1·6	·54	1·07	1·07	1·06	1·05	1·5	1·6	Nil
Tabora	1·1	·18	·56	·54	·17	·43	·1	·23	·11	·5	·48	·12
Tanga	·18	·3	·63	·46	·91	·73	·20	·04	·08	·77	·54	·22
Tanga Dhows (examination began in Dec.)	—	—	—	—	—	—	—	—	—	—	—	9·00

12. STATISTICS.

(1) *General Native Population.*

The most recent estimate (1931) of the native population of the territory is computed at 5,022,640. No reliable statistics relating to birth, death and infant mortality rates are available at present.

(2) *General European Population.*

Acknowledgment is made to the Registrar-General of Births and Deaths for a return of the registered deaths, a total of seventy-nine, which are summarized as follows :—

Causes of Deaths of Europeans during 1935.

(Classified according to the Manual of the International List of Causes of Deaths, 1931.)

Infectious and Parasitic Diseases	25
Cancer and Other Tumours	3
Diseases of the Circulatory System	16
,, ,, Respiratory ,, ...	15
,, ,, Digestive ,, ...	3
Non-Venereal Diseases of the Genito-Urinary System and Annexa	1
Diseases of Pregnancy, Childbirth and the Puerperal State	1
Congenital Malformations	1
Diseases of Early Infancy	5
Old Age	1
Affections produced by External Causes	8
Total ...	79

(3) *European Official Population.*

(For table of sick, invaliding and death rates see page 32.)

Deaths.—There were seven deaths among European officials, three due to disease, one to suicide and three to accident.

	1933	1934	1935
Accident—overdose of poison	1	—	—
Suicide	2	—	1
Hæmoptysis	1	—	—
Broncho-Pneumonia	1	—	—
Septicæmia	1	—	—
Acute Oedema of Larynx	1	—	—
Encephalitis lethargica	1	—	—
Blackwater fever	—	—	1
Ruptured Appendix abscess	—	—	1
General Peritonitis	—	—	1
Accident—drowning	—	—	1*
,, aeroplane propeller	—	—	1
,, fall from aerial ropeway	—	—	1
Total ...	8	—	7

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*Not shown in Returns of Diseases and Deaths (In- and Out-patients).

Invalidings.—Six European officials were invalided during the year as compared with four and eight during the two preceding years :—

	1933	1934	1935
Tuberculosis	—	1	—
Pain in the region of gall bladder	—	1	—
Neurasthenia	2	—	1
Mediastinal Neoplasm	1	—	—
Neoplasm of the neck	—	1	—
Pleurisy	1	—	1
Empyema	—	1	—
Epilepsy	—	1	—
Gastric Ulcer	—	2	—
Cerebral Gumma	—	—	1
Debility	—	1	—
Appendicitis	—	—	1
Nervous exhaustion	—	—	1
Malignant swelling of sub-maxillary gland	—	—	1
Total	4	8	6

(4) Asian Official Population.

Deaths.—There were six deaths among Asian officials, all were due to disease :—

	1933	1934	1935
Blackwater fever	—	1	2
Heart failure	1	—	—
Embolism	1	—	—
Acute Appendicitis	—	1	—
By violence	—	1	—
Stricture of the urethra	—	—	1
Peritonitis	—	—	1
Cholecystitis	—	—	1
Pneumonia	—	—	1
Total	2	3	6

Invalidings.—Six Asian officials were invalided during the year :—

	1933	1934	1935
Pulmonary Tuberculosis	1	—	2
General debility and premature senility	1	—	2
Mental derangement	1	—	—
Chronic Fistula	1	—	—
Chronic Cholecystitis	1	—	—
Choroido-retinitis	1	—	—
Sciatica	—	1	—
Neurasthenia	—	1	—
Diabetes	—	1	—
Cardiac dilatation	—	1	—
Mediastinal new growth	—	1	—
Gastric Ulcer	—	1	—
Chronic Interstitial nephritis	—	—	1
Fistula in ano	—	—	1
Total	6	6	6

Sick, Invaliding and Death Rates, European and Asian Officials.

	European			Asian		
	1933	1934	1935	1933	1934	1935
1. Total number of Officials Resident	1,132	965	947	1,336	1,152	1,143
2. Average number Resident	727	598	587	970	841	834
3. Total number on Sick List...	497	623	570	700	823	809
4. Total number of days on Sick List	3,328	4,434	4,015	3,386	4,117	4,190
5. Average daily number on Sick List	9·12	12·15	11·00	9·28	11·28	11·48
6. Percentage of sick to average number Resident	1·25	2·03	1·87	0·96	1·34	1·38
7. Average number of days on Sick List for each Patient ...	6·70	7·12	7·04	4·84	5·00	5·18
8. Average sick time to each Resident	4·58	7·41	6·84	3·59	4·89	5·02
9. Total number Invalided	4	8	8	6	6	6
10. Percentage of Invalidings to Total Resident	0·35	0·83	0·84	0·45	0·52	0·52
11. Total Deaths	8	Nil	7*	2	3	6
12. Percentage of Deaths to Total Resident	0·71	Nil	0·74	0·16	0·26	0·52
13. Percentage of Deaths to average number Resident	1·10	Nil	1·19	0·21	0·36	0·72
14. Number of cases of sickness contracted away from Residence	12	5	16	3	2	1

Note.—Four European officials died in England and are not shown in the above return.

*One death not shown in the Table of Returns of Diseases and Deaths (In-and Out-patients)

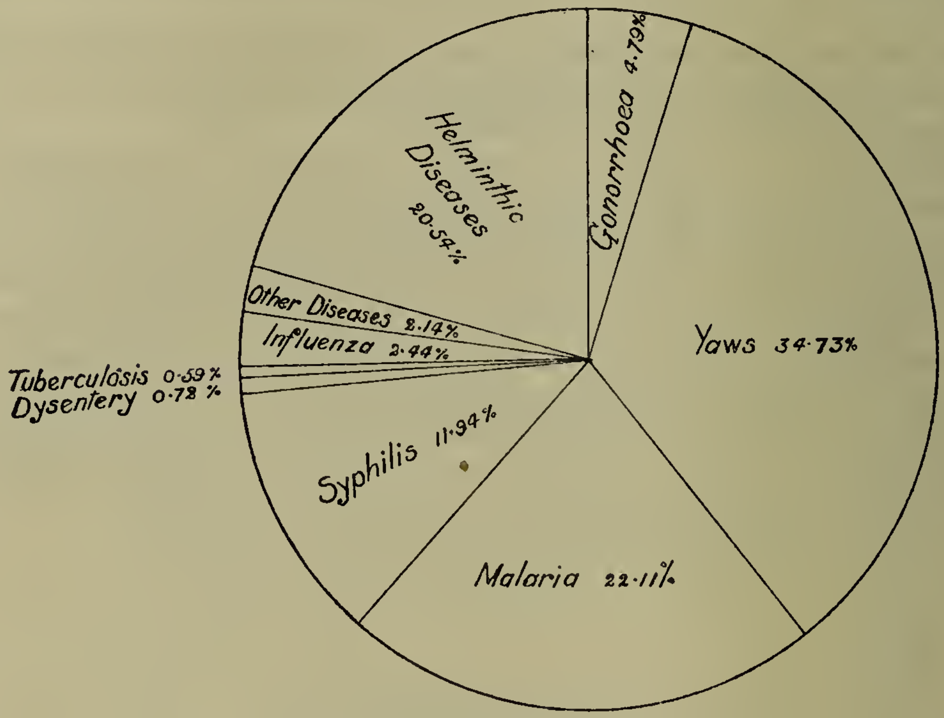
(5) Classification of Hospital Cases and Deaths.

Tables showing the classification of hospital cases and deaths by groups for 1934 and 1935 are given at page 36 ; and detailed lists of diseases and deaths classified in groups for all races and for Europeans separately are at pages 63 and 77.

Diagrams showing the proportion of cases and deaths at hospitals classified according to the groups used in the Manual of the International List of Causes of Deaths are reproduced at pages 34 and 35.

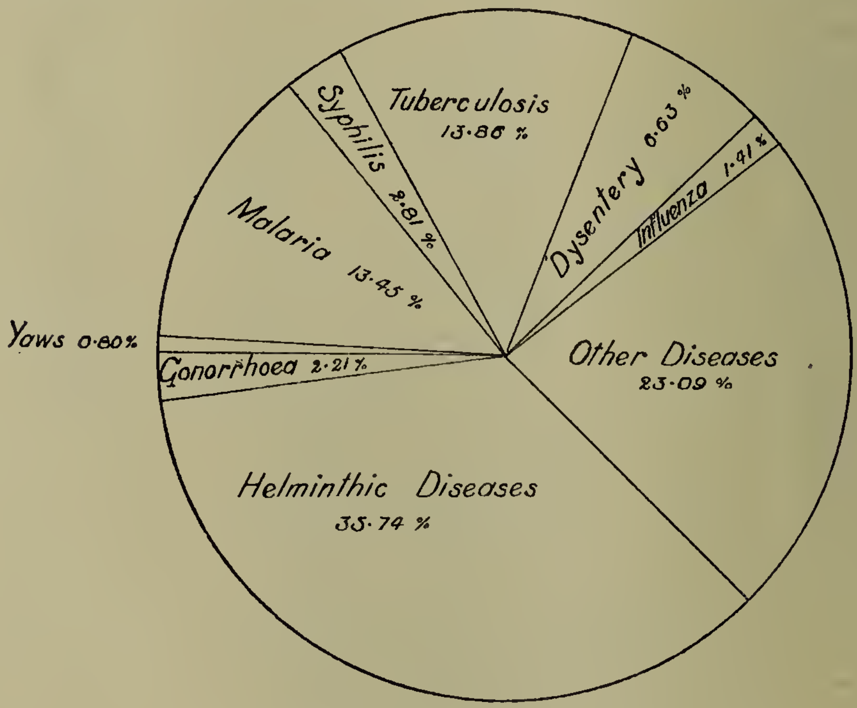
The proportion of infectious and parasitic cases and of the different component diseases of that group remained almost the same as in 1934. There was a slight proportionate increase in malaria and a corresponding decrease in yaws. The proportion of deaths was also similar, though more deaths in the infectious group were ascribed to helminthic and "other" diseases, and malaria, while the proportions of those from tuberculosis, syphilis, yaws and influenza fell. The proportion of deaths of hospital patients rose from 2·58 to 2·65 per thousand patients (in- and out-patients together) which may be accounted for by the fact that the total number of patients treated was reduced by 2,916. The differences in all cases are too small to have much significance.

Proportion in Percentages of Infectious and Parasitic Disease
In- and Out-Patients Treated at Hospitals.



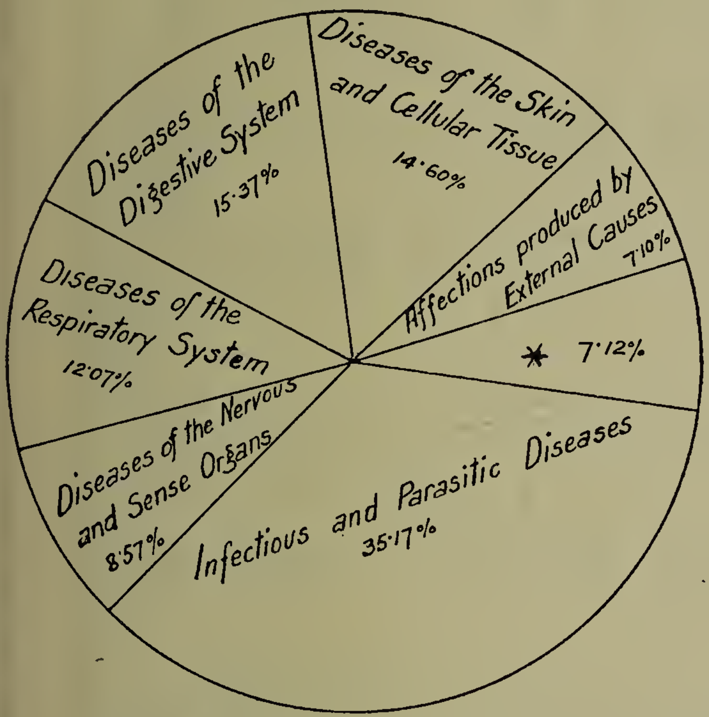
Total Incidence 203,734.

Proportion of Deaths in Percentages of Infectious and Parasitic Diseas
In- and Out- Patients at Hospitals.



Total Deaths 498.

Proportion of Infectious, Parasitic and other Diseases Shown as Percentages of total cases treated at Hospitals.

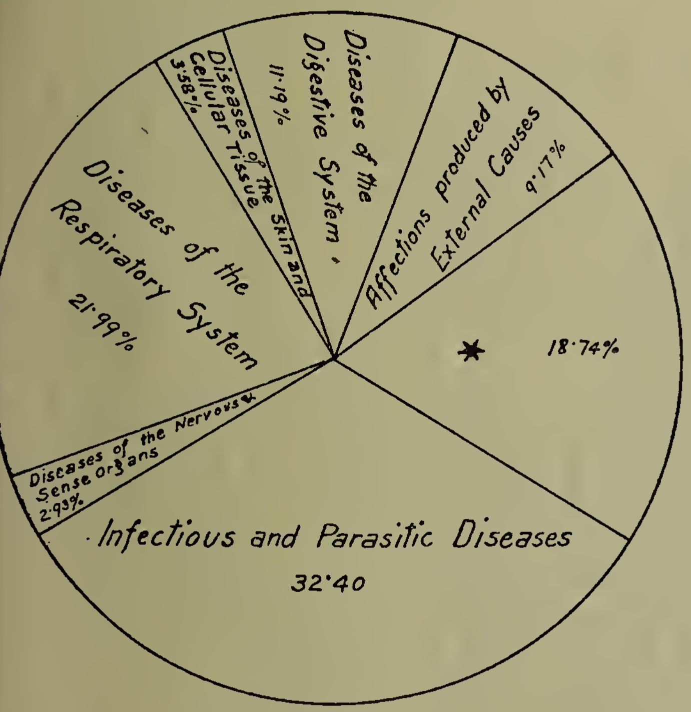


*

Cancer and other Tumors.	0·06%
Rheumatism, Diseases of Nutrition and of Endocrine Glands and other general Diseases.	1·32%
Diseases of the Blood and Blood-forming Organs.	0·65%
Chronic Poisoning.	0·00%
Diseases of the circulatory system.	0·43
Non-Venereal Diseases of the Genito-urinary system and Annexa.	0·88%
Diseases of Pregnancy, Childbirth and the Puerperal state.	0·27%
Diseases of the Bones and Organs of Locomotion.	2·85%
Diseases of early infancy.	0·04%
Old Age.	0·09%
Ill-defined Diseases.	0·53%
	7·12%

Total Incidence 579,332.

oportion of Deaths of Infectious, Parasitic, Systemic & other Diseases Shown as Percentages of total Deaths at Hospitals.



*

Cancer and other Tumors.	2·08%
Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases.	1·63%
Diseases of the Blood and blood-forming Organs.	0·72%
Diseases of the circulatory system.	2·67%
Non-Venereal Diseases of the Genito-urinary System and Annexa.	4·10%
Diseases of Pregnancy, Childbirth and the Puerperal state.	2·21%
Diseases of the Bones and Organs of Locomotion.	1·37%
Diseases of early infancy.	0·45%
Congenital Malformations.	0·06%
Old Age.	1·89%
Ill-defined Diseases.	1·56%
	18·74%

Total Deaths 1,537.

CASES AND DEATHS BY GROUPS, 1935 (Government institutions only).

	Cases		Deaths		Percentage of group to total cases		Percentage of deaths to total deaths	
	1934	1935	1934	1935	1934	1935	1934	1935
I.—Infectious and Parasitic Diseases...	211,702	203,734	499	498	36·36	35·17	33·13	32·40
II.—Cancer and other Tumours	422	325	49	32	0·08	0·06	3·25	2·08
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases ...	5,609	7,656	16	25	0·96	1·32	1·06	1·63
IV.—Diseases of the Blood and Blood-forming Organs	4,064	3,750	16	11	0·70	0·65	1·06	0·72
V.—Chronic Poisoning	85	7	...	...	0·01	...	...	...
VI.—Diseases of the Nervous and Sense Organs ...	49,024	49,663	62	45	8·42	8·57	4·12	2·93
VII.—Diseases of the Circulatory System	2,261	2,515	43	41	0·39	0·43	2·86	2·67
VIII.—Diseases of the Respiratory System	68,234	69,956	279	338	11·72	12·07	18·53	21·99
IX.—Diseases of the Digestive System	92,177	89,029	145	172	15·83	15·37	9·62	11·19
X.—Non-venereal Diseases of the Genito-Urinary System and Annexa	5,027	5,077	66	63	0·86	0·88	4·38	4·10
XI.—Diseases of Pregnancy, Childbirth and the Puerperal State	1,516	1,553	42	34	0·26	0·27	2·80	2·21
XII.—Diseases of the Skin and Cellular Tissue ...	83,410	84,556	57	55	14·33	14·60	3·78	3·58
XIII.—Diseases of the Bones and Organs of Locomotion	16,478	16,533	17	21	2·83	2·85	1·13	1·37
XIV.—Congenital Malformations	14	27	3	1	...	...	0·20	0·06
XV.—Diseases of Early Infancy	150	238	8	7	0·03	0·04	0·53	0·45
XVI.—Old Age	530	533	34	29	0·09	0·09	2·26	1·89
XVII.—Affections produced by External Causes ...	37,988	41,130	152	141	6·52	7·10	10·09	9·17
XVIII.—Ill-defined Diseases	3,557	3,050	18	24	0·61	0·53	1·20	1·56
Total ...	582,248	579,332	1,506	1,537	100·00	100·00	100·00	100·00

NOTE.—The classification is in accordance with the Manual of The International List of Causes of Death. 1931 edition.

III.—ABSTRACTS FROM THE ANNUAL REPORTS OF THE MEDICAL AND HEALTH OFFICERS.

Dar es Salaam: Dr B. O. Wilkin, Acting Senior Health Officer.

Only one medical officer was available for duty at the Health office throughout the year and it was necessary to reorganize the duties of other staff to compensate for the extra work thrown on the medical officer of health, who now combines his duties with those of port health officer. Anti-malaria work has been done by the malaria research officer and his staff, while school medical inspection was undertaken voluntarily by Mrs Harvey, a former lady medical officer.

Malaria.—There is a plentiful supply of anopheles at the periphery of the township where the incidence of malaria is high. Year after year there is an infiltration of anopheles—noted as an increase in anopheline mosquitoes caught in houses—from the fringe of the town inwards. This takes place during and after the rainy months and is often aided by favourable wind direction. There is an attendant rise in the incidence of malaria in residents living in central areas; it is difficult to state what proportions this seasonal increase might attain, if control measures at the peripheral source of anopheline breeding were not maintained. Future malarial control measures at Dar es Salaam will provide for anopheline reduction by major works (since approved and commenced); and the establishment of a protective zone where conditions would be inimical to the spread of malaria, entailing perhaps the extension of the township boundaries and removal of small units of population at present in the proposed area of protection.

The ædes index for the town has been reduced from 3·61 in 1934 to 2·93 in 1935. The index for dhows remains high (4·03) though it has been reduced by about half since 1934.

Plague Prevention.—The town is exposed to possible danger of importing plague-infected rats and fleas through the ports, as well as from the endemic plague areas inland via road and rail transport. The Medical department maintains rat catchers, who bring in about fifty rats a day. These are inspected and a proportion subjected to a post-mortem examination, by microscope and by naked eye, for signs of plague at the laboratory. No positive cases have been found to date. In all 21,022 rats were caught and 3,012 examined during 1935.

Following a report on rat infestation in the dock warehouses, the railway authorities improved a number of the worst warehouse defects.

It is worthy of note that large ships do not tie-up alongside here, but the local ships and dhows do. The chances of taking in rat immigrants is greatest therefore from the local trade. No rat-guards are fitted.

The problem of rat control in the town itself is difficult because the living rooms, kitchens and stores of hundreds of groundfloor shops are stacked with sacks of grain to the ceiling, in utterly unsuitable surroundings. Numerous small stores exhibit dilapidated verandas crowded with little bowls of exposed foods which are refilled as required from open sacks kept in the inner rooms.

Tuberculosis.—Sixty-four cases of tuberculosis were notified during the year. An attempt was made to ascertain the proportion of cases of phthisis among the non-native population in the most congested part of the commercial area (Zone II). In spite of careful propaganda by the municipal secretary and the health officer, and the promises of help by the heads of various communities, the attempt ended, after a month's efforts, in complete failure. Absolutely no information was gained as to the extent of this disease in that area.

Helminthic Diseases.—Owing to the discovery of cases of ankylostomiasis in children who were considered sufficiently protected against this invasion, the beaches came under suspicion. An endeavour was made to investigate this problem. A few weeks of preliminary observation indicated that there are two distinct sources of danger. One due to individuals using suitable spots as regular latrine areas, and another due to vast quantities of partially broken up fæces voided by the numerous drain pipes into the harbour. The latrine areas present no features of particular interest. They occur along the southern beaches of Oyster Bay promontory, and the upper fringe of the beach beyond Selander Bridge beside the road.

The second source of beach pollution is of considerable interest. It arises from the drain pipes which carry surface water and sewage to the harbour and Ocean road fronts. As the wind tends to cause fæcal matter to float up on to the beach, a vast quantity of helminth eggs can be deposited on the edge of the grass all along the foreshore of Azania Front. The Deputy Director of Laboratory Service agreed to co-operate in investigating this problem, and has examined a large number of specimens in the laboratory for helminth eggs. The results of the examination showed that of 331 specimens, 253 contained ankylostome eggs.

It is proposed to continue experiments designed to ascertain the length of life of ankylostome eggs kept under sea-wetted sand, and in sea water during 1936.

Cases of schistosomiasis come in from the district and from the township. The schoolboys at the central school for Africans produced forty-nine cases. Snails taken from the township ponds and creeks have been examined. So far no specimen has been found infected, nor have any been experimentally infected. Specimens of the shells have been kept and will be forwarded during 1936 to the British Museum, together with any further finds, for identification.

It is still unwise to state whether infection with schistosomiasis is possible in the town of Dar es Salaam or not. The cases may come from paddling in, or drinking of, water from ponds near the town. The frequency with which *Mchikichini* spring and its neighbouring furrows occurs as the water source and bathing place of reported cases is worthy of note. Next comes the main stream of the Msimbazi.

Refuse Collection and Disposal.—Five refuse lorries and seven ox carts are employed for collection of refuse from the township, including Oyster Bay and Ilala. There are twenty-seven oxen. The use of lorries for refuse removal is costly, and in Zone II, where stops are frequent and streets narrow, experiments were made to find how many ox carts could replace these. Three ox carts appear to suffice in place of each lorry. If the carts were fitted with rubber-tyred ball-bearing wheels, one ox could probably draw each cart, as there are no hills and roads are good. Bodies for the carts can be constructed locally. Estimates of capital and running costs of rubber-tyred ox carts as compared with motor lorries have been drawn up and these show that four ox carts cost £544 less, and can be run for £96 per annum less, than one lorry.

Refuse is disposed of by burning and regulated tipping. One permanent shaft incinerator and twenty-one open railway sleeper incinerators are in use : six of the latter are covered and have covered storage sheds.

Water Supply.—The public water supply has maintained its good quality but being somewhat saline and, to natives, expensive, it is not popular. Many wells are still in use and from some of them water is sold to the public. Sixty-nine samples of water from wells were examined bacteriologically during the year and twenty-one wells were closed as a result of these examinations.

School Medical Inspection.—The following is extracted from Dr Harvey's report on the government school :—

> "The thing that has struck me most on my return to the school work after three years' absence, was the great improvement in the general cleanliness and physical well-being of the boys. Of the 165 children examined, which included all new boys, none was as ragged, dirty or under-nourished as some of those I saw when I started work there in 1927, or when I resigned in 1932. During those years the standard rose steadily but after a long absence the change is most noticeable. As far as possible, I have dealt with any cases of decayed teeth by extraction only ; those cases beyond my power were seen and treated by the senior dental surgeon.
>
> "When I was school medical officer, I always had a lot of boys on cod-liver oil, as I considered that a great deal of their ailments was due to lack of fat in their diet, and their low resistance to infection due to lack of vitamins A and D. Some very chronic cases of ulcers cleared up extremely rapidly with daily oil. On my return, therefore, I asked to be allowed to try giving half an ounce of fat daily to a selected group of boys, all of whom were definitely under-nourished. The final groups were, thirteen boys on cod liver oil, eleven on palm oil and twenty-one on shark oil. The period was not long enough to allow of any conclusions being drawn, and so far the results have proved disappointing. I am now trying the addition of calcium lactate. My impression now is that general under-nourishment is the case rather than any one particular deficiency in their diet, and my husband and I are hoping that it may be possible to provide a free meal daily for a group of boys and record results. The teachers seem to think that those boys who received oil have brightened up mentally a bit, but the results of the terminal examinations do not show any dramatic improvements."

Town Planning.—Detailed plans of the township exist, together with town planning schemes produced by the government architect. The whole peninsular-like piece of ground, included between the creeks and the sea and the harbour, is mapped for development. The African section is approximately full, and the Ilala suburb will not accommodate all the Africans now scattered in huts within areas to be developed as residential and trading zones.

The open space is an area now projected as public playgrounds. This would be better as park or garden land, and playgrounds should be encouraged on the floors of the creeks. These would then receive constantly increasing attention from private sources and thus assist malaria control, if properly watched. Moreover, they surround the African part of the town, and thus provide a greater number of points adjacent to dwellings in that area. Further, native dances held there would not cause nuisance to the commercial section in the form of all-night noise and of littered waste materials.

Food Inspection.—The inspection of food and licensed trade premises is carried out by one of the sanitary superintendents and provides whole-time employment. A large quantity of unsound foodstuffs has required to be condemned, but no difficulty has arisen nor have any prosecutions been conducted against owners. All articles have been surrendered voluntarily.

On the 9th October there was a small outbreak of fish poisoning in the native town thought to be due to eating dried fish (*Ng'onda*) of a poisonous nature. The signs and symptoms were those of acute intestinal irritation. There was one death out of the twenty-five traced sufferers. The food inspector has made arrangements to prevent recurrence, which appear to be satisfactory.

Of 260 samples of milk taken, six were found to be slightly below the standard for milk fat, viz. three per cent, and two below the standard for solids other than fat, viz. 8·5 per cent. The offenders were dealt with at the Health office, the offence not being serious enough to necessitate a complaint being laid before the magistrate. The average milk fat content of the samples taken was 4·1 per cent and the non-fatty solids 8·79 per cent.

One hundred and eighty-three licences were issued by the township authority, on the recommendation of the medical officer of health, after the premises had been inspected by the food inspector, and necessary improvements effected to the satisfaction of the authority.

The six markets in the township are controlled by the township authority but are visited and inspected daily by the food inspector.

Port Health.—Pratique was granted to 657 ships and 1,216 dhows during the year.

Maternity and Child Welfare.—A very successful baby show was held in connection with the clinic on the 31st December 1935.

Tanga Province: Dr W. Harden Smith, Acting Senior Health Officer.

Public health activities in the Tanga province were for the most part confined to routine work in Tanga township throughout 1935.

Malaria.—For the last five months of the year weekly returns of malaria cases treated in the town at the government hospital and by a European private practitioner were analysed, and patients interviewed where necessary, in order to establish the origin of infection. Of fifty-five cases who might have been town infections twenty-eight were non-native and of these seventeen may with reasonable certainty be considered to have been infected in the town.

About three miles of earth drains were cut on the outskirts of the town to drain clay-bed pools and seepage swamps into a nulla which runs eastward to the sea from the southern end of the township. The drains are sufficiently deep to take subsoil water from the seepage swamps; they converge at a point in the nulla where the soil is very absorbent and the water brought there quickly disappears. These drains considerably reduced the amount of open water in which anopheline breeding occurs, but regular searches for adult anopheles in "catching stations" show that at the end of the year anopheline infestation is still considerable.

At Korogwe the recommendations of the malaria research officer for the drainage of the main swamp in the township were carried out by the provincial administration.

Filariasis.—It is probable that the infection rate with *Filaria bancrofti* is high in Tanga. Of the night bloods of ten mosquito finders, examined in order to get specimens for demonstration, four were found to contain microfilaria. The town is intensely infested with *Culex fatigans*, the most prolific breeding places being pit latrines, untrapped soakage pits, covered storm water drains and holes in trees.

A considerable amount of time has been devoted to the control of domestic mosquitoes, particularly in Zone II, and some measure of success has been achieved; but until all house drainage is connected to the proposed main sewerage system and storm water drains are overhauled so that every drain can be properly cleaned, it will be impossible to establish complete control.

Yellow Fever.—The ædes index in the township has averaged 0·55 for the year and in no month has it been more than 0·91. Though this figure would certainly be increased by more intensive searching, it is probable that ædes is under sufficient control to prevent the spread of yellow fever should the infection be introduced. It is of interest to note that the ædes index in a fishing village about a mile to the south-east of the township boundary is 17·0, and there is no reason to expect that this is not a typical figure in such villages.

Dysentery and Enteric Fever.—Sporadic cases of these diseases occurred during the year.

Tuberculosis.—Twenty-nine cases were isolated in the infectious diseases hospital.

Leprosy.—Thirty-two cases were isolated in the infectious diseases hospital and the average populations of the camps at Misozwe and Mlalo were about sixty and forty respectively.

Deficiency Diseases.—A few cases of beri-beri have been reported among estate labourers and one case has been treated at the Tanga hospital. It is probable that many, especially mild, cases of this disease are not diagnosed.

Helminthic Diseases.—Ankylostomiasis and schistosomiasis are common.

Sewage Disposal.—In general sewage disposal is by means of pits. In some cases bucket or pan latrines are used, notably in the case of the public latrines; and in several instances bath and kitchen waste are run into storm water drains. Soakage pits receiving septic tank effluent, or bath and kitchen waste, frequently overflow and arrangements were made to have their contents pumped out and disposed of on the beach at Kisosora when necessary. Storm water drains receiving waste water not only give rise to smell nuisance but also form safe breeding places for culicines.

Refuse Disposal.—Incineration of refuse has been abandoned in favour of tipping and covering. The reasons for this were (a) that there are many hollows and wet weather pools in the town which require filling, (b) there is less handling and transport of the refuse and (c) since there is always an unburnt residue of dust and organic debris at incinerators which is liable to breed flies, the process is as safe as incineration. The main tipping grounds chosen were near the maternity and child welfare clinic and the native market respectively. Both these places were watched for invasion by flies. No invasion occurred at the market but one of short duration did occur at the clinic owing to temporary disorganization of work following heavy rain at the end of September.

Drainage.—The surface drainage of Zone II is excellent in so far as it prevents flooding of the streets in the most severe downpour, but, as already mentioned, many of the covered drains are uncleanable and are liable to breed mosquitoes. Even where covered storm water drains can be cleaned, they may be difficult to inspect and storm water should always be kept in open channels where this can possibly be done.

Owing to the numbers of coconut trees in the streets which prevent proper road making and drainage, the surface drainage of Zone III is bad. Three of the worst swamps in the south of this zone were, however, drained by earth channels during the year. An estimate has been submitted for the drainage of the northern part of the area where water may stand as much as three feet deep after heavy rain. It is understood that a comprehensive scheme for the drainage of all of Zone III is being prepared.

Water Supplies.—There is an ample and safe public water supply derived from a deep well. The Railway department maintains a supply of its own which is also from a well but is of doubtful quality. Besides these, there are numerous privately-owned wells in the town many of which must be seriously contaminated and the water from them unfit for drinking. Since many of these have been dug or renovated comparatively recently and are used for general purposes, no action other than warning the owners that the water is unfit for drinking has been taken, except in the case of soda water factories where the law on the subject is definite.

School Hygiene.—A routine examination of 337 pupils of the government school was made during the year. Out of the number, thirty-seven had enlarged spleen, five ringworm of scalp, two heart disease, one hernia, one orchitis and one hydrocele.

The dental condition of school children was, in general, good and the cleanliness of boarders satisfactory.

Native Girls' School.—Routine examination of 306 girls was done by the health visitor who reports that the general health and dental condition of the pupils has improved and that personal cleanliness is good. Stools were examined at the Health office with the following results:—

Number of stools examined	306
Number showing hookworm	24
,, ,, ascaris	1
,, ,, tapeworm	1

Examination of 306 specimens of urine showed that eleven girls were infected with *Bilharzia haematobium.*

All pupils were treated for conditions found in routine examination.

European School, Shume, Lushoto.—Late in the year it was decided to move this school to Lushoto. Boarders are now somewhat inadequately housed in two farm-houses, one for boys and the other for girls. Temporary classrooms and dining room have been made by adapting out-buildings on one of the farms. Work on new school buildings is proceeding rapidly and the plans for these are admirable. The pupils appeared clean and well cared for.

European School, Mlalo, Lushoto.—This school was visited during the holidays. The buildings are well laid out; laundry, bath and latrine accommodation are adequte, but more dormitory space is needed. Older boys sleep in the headmaster's house, and younger ones in the attic of the girls' dormitory house. A boys' dormitory has been planned but has not been built owing to lack of funds.

Housing and Town Planning.—A survey of Zone II was made by the sanitary superintendent during the year. 1 : 120 plans of blocks were enlarged from the German 1 : 1,000 map of the township and on these the position of present buildings with their cesspits, wells, soakage pits and other appurtenances was indicated. Notes giving the names of owner, occupier and recording the special features of each of the premises were attached. This survey is a valuable record of the sanitary condition of the commercial area and from it schemes for general improvement of the area can be drawn up.

A large area of the township has not as yet been laid out, and particularly to the north-east of Ngamiani, there is a considerable amount of uncontrolled building.

There is a scarcity of Crown land available for native occupation and in the Crown land in the extreme western part of Zone II (west of Amani Street) buildings of native construction are allowed.

Foodstuffs.—During the year sixty-five dairymen were licensed and seventy-one milk vendors registered. From the 1st April no vendor was allowed to sell from improvised or locally made vessels. Each vendor had to provide himself with a manufactured container and a large enamelled measure cup. No other utensils were allowed and a great improvement in the cleanliness of the milk supply has been noted.

Markets.—A high standard of cleanliness is maintained in the European market. The concrete fruit and vegetable tables installed in 1934 are popular with the native vendors.

The cleanliness of the Ngamiani market is extremely difficult to maintain owing to the lack of a water supply, the nearest standpipe being three hundred yards distant. A fresh water supply for cleansing, and sparge pipes over the tables, are still required in the fish market.

Northern Province: Dr W. HARDEN SMITH, Medical Officer of Health.

Little more than routine work was done throughout the year owing to changes in staff.

Malaria.—In Arusha township there appears to be little, if any, transmission of malaria. Dr J. H. Parry, Senior Medical Officer, in commenting on malaria states that as far as the European and Asian section of the population is concerned no cases have been contracted in the township. Dr Speirs had informed him, however, that in the Dutch settlement at Oldonyo Sambu a small number of cases of malaria were contracted where before it was unknown.

In Moshi malaria infections frequently occur during and after the long rains and all parts of the township are affected. This might be expected in the lower part of the town near Njoro where there are numerous springs and seepages and where there is a considerable amount of uncontrolled settlement by natives to within three hundred yards of the railway reserve. In the upper part of the town, however, there are no natural anopheline breeding places and the chief sources of anopheles are furrow overflows and borrow pits. Furrow overflows were reduced by cleaning the channel and borrow pits were drained or filled with spoil and refuse.

The number of cases of malaria (7,719) reported in Moshi by the medical officer, Dr Sanderson, was more than double that of the previous year. Two cases of blackwater fever occurred in natives and one in a European. Moshi has not only the highest total number but also the highest relative number of malaria cases in the territory. A survey of Moshi and Usa is being conducted by Dr D. B. Wilson under the Colonial Development Fund.

In the rural parts of the province the malarial situation ranges from total absence of transmission to hyper-endemicity; and the problem of control, particularly in the case of plantation labour, where non-immune natives may live in malarious localities is one which will be difficult to solve.

Smallpox.—No cases occurred in the province. An outbreak was reported in Mombasa in June and all immigrants were inspected and vaccinated. Vaccination has been done by African district sanitary inspectors and tribal dressers in the districts. Prisoners and school children were vaccinated in the townships where necessary.

Dysentery.—An outbreak of bacillary dysentery occurred in the Marangu-Mamba area on Kilimanjaro in January and a few deaths were reported. Investigation failed to reveal the origin of the outbreak. Amœbic dysentery is common in the Arusha district.

Enteric Fever.—Two Indian cases occurred in Moshi township but their origin was not definitely traced. The free spring water supply near the abattoir was suspected.

Cerebro-Spinal Meningitis.—An extensive outbreak occurred on the plantations and Wakamba settlements near Taveta in October. The sanitary superintendent was sent to investigate and quarantine measures were put into force. A road guard was posted on the main road to Moshi and all trains from Kenya were stopped and the passengers examined at Himo siding. Labour camps were visited daily. One case occurred locally—at a village three miles outside Moshi. In November three cases occurred on a plantation at Arusha Chini; these were Wakamba who had evaded the quarantine guard at night. Quarantine measures were taken on the plantation but owing to the size of the area were difficult to enforce, and two further cases occurred in December. Two cases were reported at Usangi on the 26th December.

Mumps.—Four deaths from an illness lasting from three to four days were reported from Kilema on the 27th April. On investigation no common factor of food, water supply, residence or relationship, etc., could be found for the four cases, but the fifth surviving case was examined and was suffering from mumps with cerebral symptoms. No further cases occurred—there had been an extensive epidemic of mumps in the area about a year before—and it seems probable that the condition was cerebral mumps. An abstract of a paper on the incidence of this condition in Europe appeared on page 630A of the *British Medical Journal* for the 23rd March 1935.

Helminthic Diseases.—These are prevalent throughout the province, the most common parasites being ascariasis and tænia. Intestinal helminth infection constitutes a major problem among the Chagga in particular and an attempt has been made to introduce bore-hole latrines as a preventive measure. Moshi returns the highest numbers of cases of tæniasis and ascariasis in the territory.

Auger heads of eight inches diameter, which had been imported by the Kilimanjaro Native Co-operative Union for tree planting, were adapted to bore holes eighteen feet deep, and it was demonstrated that in some districts such a hole could be bored by three men in about three hours. African district sanitary inspectors were instructed in their use and the borer has been demonstrated in every chiefdom on Kilimanjaro. Whether the apparatus will be popularly used is not known and an obvious objection to it is that eight inches is too small for the diameter of a pit. Sixteen inch augers can, however, be bought in England for forty-five shillings each and adapted locally for deep boring for a further forty shillings. There can be no doubt that should bore-hole latrines become popular and children be persuaded to use them a great improvement in health would result. The pit latrines now in use on Kilimanjaro are often wide and shallow and it is doubtful if they are of any help in preventing the spread of ascaris infection.

Dr Parry reports that while tapeworm and roundworm are very common in Arusha natives, ankylostomiasis is uncommon among them. He sounds a warning, however, as to the danger of its spread by the numerous foreign natives who are employed on *shambas* and among whom numerous cases (247) were almost exclusively found.

Schistosomiasis.—Propaganda has been carried out at Kahe and Kileo (North Pare) where this disease is prevalent and the natives in these areas are alive to the possibility of clearing their villages of infection. There is a popular demand for mass treatment and such should be given as soon as the necessary staff is available.

The first case reported from Usa was seen in a newly-arrived labourer on the 18th March. The patient was removed to Arusha for treatment and no further cases have been seen. It is to be hoped that this disease will not be added to amœbic dysentery and malaria as a common scourge in Usa. Unfortunately many labourers come to Usa via the endemic area at Mbugwe. Dr Parry notes that the few cases of schistosomiasis diagnosed at Arusha were in natives from other districts.

Refuse Disposal.—The incinerators at Moshi were not in use after the early part of the year. It was decided to dump refuse in the numerous large abandoned quarries and borrow pits and other low-lying parts of the town which breed mosquitoes prolifically during the rains. The refuse is immediately covered with one foot of earth which is rammed. The dumps are closely watched and no fly breeding has occurred. This system is especially valuable during the rains when it is impossible to burn the tons of banana refuse which are collected weekly from the market. A similar method of refuse disposal has been adopted in Arusha.

Water Supply.—The mains of the new piped system at Arusha were installed and some buildings connected up. It is hoped that during 1936 most residential and commercial buildings will obtain their supply from this source. The mains had not yet reached the bazaar area by the end of the year.

School Hygiene.—A beginning was made in the routine examination of pupils at the old Moshi central school in March but only fifty boys were examined. The standards of cleanliness and general health of the pupils were good but the incidence of ascariasis in the fifty examined was very high. Arrangements were made to have an adequately trained dispenser at the school for the treatment of minor ailments.

The government European school at Arusha has been provided with adequate arrangements for heating bath water. A laundry and isolation room are, however, still required. The school has been connected to the new town water supply.

Labour.—The general conditions under which labour is employed appear to be that labourers present themselves for employment and are either given three days in which to build their own quarters or are housed in camps of mean mud huts. They can usually have land on which to grow foodstuffs (mostly maize) to supplement the food which they buy from their wages.

Food and Disease.—There has been no shortage of food crops for natives during the year as the rains have been normal and there has been no visitation of locusts.

Markets.—A type plan for a rural meat market was drawn up and a market based on it is to be built in Machame. Copies of this plan have been distributed to all branch societies of the Kilimanjaro Native Co-operative Union.

Rural Hygiene.—Remarkable improvements in living conditions are being made in North Pare. "Bee-hive" huts are being rapidly replaced by buildings with walls and windows, and the custom of sharing quarters with cattle has been practically abandoned.

Lake Province: Dr J. M. Campbell, Senior Health Officer.

We look back over 1935 and see that the optimistic expectations of 1934 have been realized. All the essential producing activities of the people have prospered. Prospects for 1936 are equally bright. To dwell on the obvious signs of prosperity—vastly increased production, rising railway revenue and so on—would be pleasant, but hardly wise. We must appreciate that the increase in production is due solely to an increase in the area cultivated and it does not mean that the peasant is a better farmer or a healthier worker. Last year it was pointed out that there is a limit to what can be produced from the land unless intelligent methods of farming are adopted. It is now believed that in many areas the limit of cultivation has been reached and that, unless aids to agriculture such as ploughing, manuring, rotation of crops and so on are introduced, a peak will be reached in the near future and followed by a steady decline as the land is impoverished by heavy cropping.

The concern of Government—all branches and sections—is so to guide development that there will emerge contended Africans living in a healthy environment whether on a peasant farm or on a mine or in a shop. The first and basic problem is not capable of quick solution : it is to overcome the African's inertia, break down his conservatism and educate his ignorance—change his outlook, in fact. This must be a gradual process. The rate of progress will depend on the rate of advance of education which in turn depends on the amount of money available for education.

The labour problem is a difficult one : how to achieve agricultural prosperity and adequate supplies of labour for mines, without so reducing populations in certain areas that bush, tsetse and sleeping sickness will encroach. Mining and agricultural interests should not be antagonistic, in fact, they must eventually become mutually beneficial. The present ''growing pains'' that irritate the mining industry are inevitable and their abatement is equally inevitable. It is hoped that in the near future a market gardener class will spring up in the vicinity of mines—this must be encouraged by the Agricultural department. Dairy farming in suitable areas would also benefit mines and farmers. The obvious present troubles are (1) the mines want labour to build labour lines and cannot house the labour till labour lines are built, (2) in the more crowded agricultural areas the sudden rise in prosperity due to successful cotton crops tends to anchor the people to their *shambas* and (3) it is not widely known among the natives that the big mining companies offer good wages and good living conditions. The mitigation of these troubles will be effected as follows : (1) the building of good labour lines will progress in snowball fashion—the mines have good housing for a certain number of labourers and as housing increases the labour supply increases and more housing can be built, (2) the novelty of easy money from cotton will wear off, and as the land gets used up, bumper crops will not be so easily produced—the more adventurous spirited will find another outlet for their energies by working in the mines and (3) news does spread in Africa and, as more and more of the people hear about the mines, more and more will be found to whom the life of a mining camp appeals.

A problem that more directly concerns the Medical department is how to bring about the conversion of surplus wealth into good housing and healthy living. No immediate results may be expected from such propaganda as has been conducted through public health exhibits at agricultural shows ; but such propaganda does introduce the idea and is useful preparatory work. Before the peasants will contemplate working on and spending money on permanent housing they must be persuaded to adopt fixed farming—this was dealt with in last year's report. They must also be persuaded that the government, through its officials, is honestly trying to help them and has no ulterior motive in advocating the purchase of doors and windows. The provision of free medical treatment is the most powerful proof of the sincerity of government's desire to help the peasant. The peasant can see no government axe to grind in this.

The improvement of medical facilities appeals to the Africans. Improvement necessitates better district workers and in 1935 this matter received attention. The medical school at Mwanza gives every indication of being a complete success.

To return to better housing, it is expected that through the medium of efficient medical workers the people will be persuaded that the authorities are definitely concerned to improve the public health and that when a European sanitary superintendent is available to tour in the districts and is supported by skilled African artisans the people will be willing to accept their help in the matter of building permanent houses.

It is impossible to achieve an accurate conception of the state of the public health in the districts. The work of ''sampling'' the population was carried on but much less was done than had been hoped for. In different parts of Mwanza district results were similar to those obtained in Maswa, Kwimba and Shinyanga last year.

Generally speaking the rural population lives in an insanitary environment and there has been no change during the year. When the medical staff now being trained has been functioning in out-districts for some time we may hope to see foci in which the natives pay more attention to hygienic living.

Minor Settlements.—Apart from those large minor settlements where there is European influence, such as Musoma, very little obvious change in the appearance of minor settlements can be seen. But changes are taking place. The average settlement is cleaner; some dilapidated ruins have been removed, more plots have adequate latrines and the sanitary authorities do carry out inspections at the instance of the African district sanitary inspectors and keep records of their meetings.

Vital Statistics.—The Asian infant mortality rate referred to with satisfaction last year was 230. This year it is 72·7. There has been a very remarkable and gratifying decrease in this rate in the last few years. In 1931 the mortality rate was 250; in 1932 it was 325; in 1933 it was 243; in 1934 it was 230 and this year it is 72·7. The result is particularly satisfying since the rate is not based on estimated population figures or other approximations but on registered births and notified deaths. One does not want to exaggerate the significance of this result and the notably low 1935 figure may not soon be repeated; but at least it promises well.

It might be noted that the European infant mortality rate would be nil but numbers are too small to signify. The African infant mortality rate would be one thousand but as African births are not notified or registered no rate can be given. The Asian rate only is based on sufficient numbers of accurately recorded births and deaths.

Cerebro-Spinal Meningitis.—It is satisfactory to be able to record that the measures taken to prevent the spread of this disease were completely effective. It is also very satisfactory to be able to refer gratefully to the keen and able assistance given by the administrative officers in Bukoba and to the useful work done by the Kentan Mine medical staff in Saragura.

Smallpox.—The province remained free from this disease. When cases were recorded in Kampala some anxiety was felt in case the disease should spread round the lake. It appears that the energetic measures taken in Kampala were effective in localizing the disease.

Vaccinations.—Last year it was noted that towards the end of the year ''numbers began to fall off, owing, it was said, to a dearth of unvaccinated material." It is possible that all the most accessible people have now been vaccinated—certainly after the drive in 1934 there was a marked decrease in 1935.

Year	Vaccinations
1933	50,595
1934	120,039
1935	51,535

Plague.—It is a matter of providence only that plague did not enter the province during the year. The unprecedented increase in available "rat attractive" material (provided by the comparatively huge crop of cotton, the bulk of which was not protected effectively against rat harbourage) apparently did not entice any plague-infected rats across our borders. Reports have been made on this matter and the provincial administrative and agricultural officers are aware of the dangers.

Rat plague was reported by the sub-assistant surgeon, Shinyanga, but proved to be a mistaken diagnosis fortunately. The common plague rat, *Rattus rattus*, abounds in all areas inspected. In Mwanza the common *Xenopsylla* flea is *cheopis*; *X. astia* is rare or absent.

Malaria.—This disease remains a constant menace in all towns and districts. One thousand two hundred and twenty-five cases with four deaths are recorded at the Mwanza hospital as against one thousand nine hundred and ninety-nine with two deaths in 1934. Case mortality is extremely low. Though undoubtedly a cause of much debility, malaria is not a very important cause of death—in Mwanza four Asian and three African deaths were attributed to malaria whereas seven Asian and twenty-five African deaths were attributed to pneumonia. No new drainage schemes were introduced in 1935; but in Bukoba a very thorough mosquito survey of the Kanoni river area was started. It is interesting that in Mwanza *A. funestus* is very prevalent, but has not been found in Bukoba, and that *A. mauritianus* is fairly common in Bukoba but is not found in Mwanza though it was very common there a few years ago. (See note in Bukoba report, page 49.)

Relapsing Fever.—One hundred and eleven cases were treated in the Mwanza hospital with no deaths. One hundred and fifty-two cases were treated last year. All cases were investigated and deticking measures enforced—it is just possible that this is having some effect.

Elephantiasis.—Only thirty-five cases were treated in Mwanza hospital. This is the lowest recorded for several years.

Syphilis and Yaws.—Four thousand and sixty-three cases were treated as syphilis in the Mwanza hospital with two deaths—about three hundred fewer cases than last year. Five hundred and sixty-seven cases were treated as yaws—about half as many as last year.

The Kwimba tribal dressers referred to in last year's report treated 9,240 cases. Mwanza tribal dressers (one at Msalala and one posted at Ukara late in the year) treated 1,582 cases. Musoma tribal dressers treated 1,467 cases.

Pulmonary Tuberculosis.—Nineteen cases and two deaths were recorded at the Mwanza hospital for the year as against twenty-six and three respectively in 1934. These figures seem to bear out the suggestion made last year that this disease has not the same significance here as it has in Europe.

Ankylostomiasis.—There was a marked decrease in the number of cases dealt with in the Mwanza hospital—687 compared with 1,111 in 1934. The disease is extremely prevalent in all the districts.

Schistosomiasis.—The number of cases of schistosomiasis also diminished—from 679 in 1934 to 443 in 1935. The schistosome diseases are very common throughout the province. These diseases can only be controlled when the people are educated in the use of latrines.

Bukoba District: Dr J. C. R. BUCHANAN, Medical Officer.

The medical officer states : "Bukoba is not a healthy station. This is partly due to a combination of altitude and humidity and to the fact that the township is surrounded by swamps and closed in by hills on all except the lake side. The violent thunderstorms which disturb sleep during many months of the year rattle the nerves of many, but perhaps the main aggravating cause of the minor ailments common among Europeans is the perpetual dampness to which they are subjected in their homes. Few, if any, of the government quarters are entirely weatherproof, and this, with a heavy rainfall distributed fairly evenly throughout the year, undoubtedly militates against the maintenance of perfect health. The provision of fireplaces in European houses deserves careful consideration. Without them there is often little opportunity for adequate airing and drying of bed-linen and personal apparel."

He confirms previous reports as to the prevalence of venereal disease and notes that the late complications do not decrease in spite of the readily available treatment in every part of the district and the improved transport facilities to government or mission hospitals. Forty-four per cent of the 541 operations performed were for genito-urinary conditions, 80 being external urethrotomies. The demand for increased hospital accommodation continues, and a desire has been expressed for the provision of a paying ward for natives.

An intensive attack on the problem of malaria in the township is under way. It has been shown that the cutting of the reed grass in the river at once facilitates the breeding of *A. gambiae*, which is the common anopheline infesting houses in the township. Anophelines provided 27 per cent of all larvæ collections in the township.

Attention has also been given to the question of aircraft arriving from other countries and arrangements have been made for them to be searched for mosquitoes and sprayed with insecticide. The ædes index is 1·38.

Records of births and deaths of Africans which merit comment are furnished from eight chiefdoms in the district ; and though it is not claimed that these are accurate they appear to form a good basis on which to found an investigation into African vital records. They represent the notifications received by the native authorities and relate to a population of 277,201 persons numbered at the 1931 census. The following rates have been calculated from the figures supplied in the medical officer's report and are given for what they are worth :—

Ratio of females to males	1·02 to 1
Ratio of male births to female	1·2 to 1
Births per 1,000 of population	31
For each female child death (age not stated) there die ...	1·2 males.
Deaths per 1,000 of population	26
Stillbirths recorded	737

One may draw two conclusions among others from these figures : either (a) the figures have a reasonable degree of accuracy or (b) the African clerks who keep the registers of births and deaths for the native authorities have a knowledge of European vital statistics and a mathematical ability above the average.

Lupa Controlled Area: Dr N. Chilton, Medical Officer of Health.

Sanitary Control.—In June the trading centres at Chunya, Lupa market, Mawoga, Isenyela and Kunguta's were declared to be minor settlements, and the Minor Settlement Rules giving power to enforce orders for the improvement of sanitation came into force in August as did also the Mining (Controlled Areas) (Public Health) Regulations.

A medical officer of health was posted to the controlled area in October with headquarters at Chunya.

A great deal of visiting for the purpose of getting to know the conditions in the area and the difficulties with which the diggers and miners have to contend was carried out; but the camps are so numerous that it will be a long time before a medical officer of health can claim to have visited them all. During these visits advice was given on the construction and layout of camps, and attention was called to the new public health regulations. The necessity of providing suitable rations was emphasized. In most cases the obtaining of a ration on the scale of that laid down in Medical Pamphlet No. 14 seemed a matter of extreme difficulty.

Some improvement was also effected in the sanitation of Mbeya, now a township. The chief offences are the making of borrow pits and the haphazard emptying of rubbish. No prosecutions were undertaken. The policy was rather one of peaceful persuasion. During 1936 some prosecutions will be necessary.

Enteric Vaccinations.—Only about eighty injections were given between October and Christmas. From then onwards there was a rush and by the 17th January 1936 nearly three hundred injections had been given since Christmas.

Enteric Cases.—Twenty-one European cases were reported up to the end of the year. The majority were treated at Mbeya. Some people claim that they contracted the disease "after a visit to Mbeya." One place cannot, however, be incriminated as the source of a disease which occurs annually all over the diggings at the beginning of the wet season. Four Asian and eleven native cases were reported. Doubtless there were many more native cases which failed to come under medical care.

Smallpox Vaccinations.—From the beginning of November vaccine lymph has been issued to the sanitary headmen of Mawoga and Lupa market. Entire reliance is not placed on the following figures which nevertheless indicate that some vaccinations have been done:—

	Vaccinated	Successful	Unsuccessful
Mawoga	200	60	90
Lupa market	309	133	146

Buildings.—It was unfortunate that the money provided for building four dispensaries was received too late to be of any use and has had to be revoted for 1936. Five corrugated iron incinerators have been assembled, and roof screws and sheets of corrugated iron have been bought in order to make shelters for them. They have been kept temporarily at Chunya because there was not enough labour to look after them in the other minor settlements. Instead of them, the task of filling up the many borrows pits at Kunguta's and elsewhere with rubbish was begun. The incinerators will be installed in the other settlements early in 1936.

Scurvy.—Cases have come to hospital in increasing numbers, eighteen in the first quarter, twenty in the second, forty-six in the third and one hundred and two in the last quarter of the year. The rise in hospital cases is caused partly by the improvement in the attitude of employers as regards sending their sick boys to hospital; partly by the shortage of fresh food at the end of the dry season; and partly by the high cost of transporting fresh food during the rains. Fewer cases are to be expected in the early months of 1936. The disease seems to be similar to that known as Rand scurvy. The following are the usual features: pains, cramps and weakness of the legs, with œdema; often marked tenderness of the legs or thighs or both. Sometimes one or more blisters on the limbs, which break down forming shallow superficial ulcers; inability to walk. The œdema soon becomes hard and brawny and is accompanied by a painful contraction of the limbs which are flexed and only gradually become straightened after several days' rest. Swollen and bleeding gums are common but not universal. The pulse rate is usually increased on admission, e.g. 100 to 120. Marked anæmia occurs in some cases, the hæmoglobin falling as low as 45 per cent, but in others it is as high as 90 per cent. Anæmia cannot be taken as a sign. The appearance of the tongue is variable. Sometimes it has bright red patches at the anterolateral margins or on the tip. Sometimes there is no change from the normal. Recovery occurs in most cases in about three weeks if half a lemon a day is added to the diet. Late cases, especially old men, become cachectic and often contract pneumonia or diarrhœa as a terminal event.

In all cases of scurvy representations have been made to the employers concerned, informing them of the disease amongst their labourers and requesting their co-operation in its prevention. Not all scurvy cases come from the mines or diggings; some are newcomers to the territory who, on the way here, have spent very little money on food.

Effects of Dry-blowing.—No cases of bronchial or pulmonary disease which could be directly traced to the dry-blowing method of recovering alluvial gold have yet been noted. A throat cough occurs in both employer and employed and lasts for some hours. Bloodshot eyes are commonly seen in those engaged in this work, except in those cases in which goggles are provided. Samples of the dust have been sent to Johannesburg for analysis.

Health of Europeans and Asians.—The most common complaint is a pale yellow watery diarrhœa from which both visitors and residents suffer. This disease, which may appropriately be called "golden diarrhœa," causes a mild abdominal discomfort and usually lasts about three days. One attack does not cause any immunity. Persistent furunculosis occurs in the dry season and in one case, in an official, was so bad that a transfer was recommended. A mild non-purulent conjunctivitis, especially in those who do not wear glasses, results from the strong winds which blow dust over everything during the dry season.

Water Supply.—A great shortage of water occurred at many mines, diggings and camps, towards the end of November. This occurred within a radius of ten miles to the south-east of Chunya and also near Sengambi settlement on the Shoga road. The water-holes in Chunya stream near the Discum Mine lasted out, in spite of the fact that lorry loads of water were taken daily from there to the neighbouring diggings. Chunya Boma depends for its water on a shallow well which is one of a chain lying at the side of the stream. It is liable to gross pollution.

A sum of one hundred shillings was obtained from the provincial commissioner with which a semirotary pump, piping and a forty-gallon drum with tap have been purchased. It is hoped to install these at one of the wells at the river side as soon as the height of the river can be gauged when it is in flood. Probably some extra piping will be needed and a small pump house which could be kept locked. It is hoped that when the water-boring plant arrives it will be possible to arrange for a proper water supply to the whole of Chunya.

Meat Markets and Abattoirs.—At Chunya the slaughtering of cattle is done on the slopes lying behind the commercial buildings to the west of the main street. Offal is buried, often inadequately, and flies abound. Similar conditions prevail in the other minor settlements. The meat is sold in small shops which are difficult to control. A proper abattoir is needed for each settlement and also a meat market with stalls at which alone the butchers should be allowed to sell their meat.

Soda Factories.—One factory exists in Mbeya and is well kept. All unknown to me a factory opened in Chunya and supplied the club on its opening night with a number of bottles containing a very dirty concoction. It was closed down next day.

Grain Stores.—Comparatively small quantities of grain are kept in the controlled area. All that is received is promptly sold. I am of the opinion that the absence of a proper grain store here contributes to the high price of *posho* on the diggings. This is a matter for the diggers themselves. They should band together and have their own buyers instead of relying on commercial enterprise.

European Staff.—There is scope for a sanitary superintendent with a permanent base at either Mbeya or Chunya. Neither of these stations has a house available for him at present, and both house and office would have to be built.

Labour Conditions.—There are about one thousand Europeans on the diggings and some twenty thousand native labourers. Anything written under the above heading must, therefore, be of a general nature, and not held to apply to individuals, many of whom treat their labour well.

(a) Very few employers (comparatively) seem to be able to give a full anti-scorbutic ration.

(b) The provision of suitable medicines and the obtaining of medical aid in cases of serious illness is apt to be delayed until it is too late.

(c) The building of labour camps is often left to the natives. Some employers seem to think that, if they have given their boys a day or two in which to build a camp, they have fulfilled their part of the bargain. Experience shows that natives will not provide themselves with satisfactory dwellings under these conditions.

REPORT BY THE SENIOR DENTAL SURGEON

Mr H. M. Fisher, L.D.S., R.C.S.

Below is a summary of the dental work done during the year for officials and their families. The staff at the end of 1935 consisted of a senior dental surgeon, a mechanic, two African attendants and a messenger. The existing vacancy for a second dental surgeon caused by the retirement on grounds of ill-health of Mr A. S. Newton had not been filled at the time of writing.

	European	Asian	
Attendances	1,679	475	
Fillings	897	102	
Extractions	255	329	
Root fillings	64	10	
Gum treatment	153	63	
Radiograms	...	...	168
Dentures	...	...	90
Repairs to dentures	...	...	86

Some five hundred Africans from the various departments, schools, domestic employ, local inhabitants and jail have received treatment which is chiefly surgical, but some fillings have been done for them.

As stated in previous reports, misplaced and unerupted third mandibular molars are common, their extraction and after-treatment take up considerable time.

The numbers of European and Asiatic children are increasing, fillings and extractions are generally required, but some regulation work has been done for them.

The prosthetic work for officials, their families and non-officials shows an increase; £627 1s. has been paid to revenue on this account; the collection of this money and numerous other clerical duties takes up a considerable portion of the writer's time.

I am indebted to Dr Shelton for the general anæsthetics which have been given.

Sickness and breakdown of the electrical equipment have interfered with the work during the year.

As suggested on other occasions, an investigation which should be undertaken as soon as funds permit, is the effect of civilized foods on the teeth of native races; considerable sums of money are spent in other countries in making experiments on children, by placing them on various diets, to find out to what extent diet plays a part in the causation of dental disease. In this country where there are tribes to whom foods of more civilized people are as yet unknown, and amongst whom the diets vary considerably, the costly experiments of other countries are being carried on by nature; an excellent opportunity therefore presents itself to study amongst these tribes the effects of their diets on their teeth, comparing the state of one tribe with others, and with members of the same tribes who have left their homes and are living under more civilized conditions and using civilized foods.

The investigation cannot be postponed indefinitely, as every year civilization is brought nearer to these people. No government should be indifferent to the advance of dental disease amongst people who are at present free from it; the manner in which this could be arrested might well be shown by such an investigation.

Dental disease is common among the native inhabitants of Dar es Salaam and presumably other large towns where civilized foods are used.

IV.—EDUCATION OF THE PUBLIC IN HYGIENE.

A public meeting was arranged at Dar es Salaam under the auspices of the British Medical Association during the visit of Sir Malcolm Watson, Director of the Ross Institute, in April. His Excellency the Governor did us the honour of attending, and some two hundred persons listened to an interesting and valuable address on malaria, particularly in its economic bearing on the life of the community.

Pamphlets for the information of the public were published and distributed on the following subjects. A detailed list is given in Part I (7)—Publications, page 16:—

"Notes on camp hygiene for employers of labour."

"Blackwater fever."

V.—SPECIAL RESEARCH.

Undertaken with the assistance of the Colonial Development Fund.

1. TUBERCULOSIS.

Dr Wilcocks, Tuberculosis Research Officer, continued his culture and animal inoculation experiments at Moshi and toured extensively in the territory to make a tuberculosis survey. The results of his survey are summarized on page 26.

2. TRYPANOSOMIASIS.

Dr Corson was absent on leave from December 1934 until the 6th November 1935. The maintenance at the Tinde laboratory of strains of trypanosomes in experimental animals was supervised by Dr Calwell during his absence. The results of this research are published from time to time in the scientific journals and those published during 1935 are given at page 56.

The work has demonstrated that *T. rhodesiense* from a human case of sleeping sickness can be conveyed by tsetse flies (*G. morsitans*) to animals, then from animal to animal several times and finally back to man causing typical sleeping sickness. *T. rhodesiense* was still infective for man after a period of nineteen months in the bodies of sheep and goats and passage through a guinea-pig. A strain of *T. rhodesiense* taken from man a year previously was still infective for man after a number of cyclical passages through *G. morsitans* and dik-diks.

The results of infecting eland, reedbuck, bushbuck and kudu with *T. rhodesiense* are being observed, with a view to ascertaining in what animals and in what combinations of animals in succession and for how long the trypanosomes can maintain their infectivity for man.

The effect of cyclical passage of *T. gambiense* through *G. morsitans* and monkeys (*Cercopithecus* sp.) is being watched.

The question of the permanence of the characteristics of the human trypanosomes under different circumstances, and their relation to *T. brucei* is also under examination.

Dr Calwell has shown that in Dar es Salaam district *T. rhodesiense* had infected the salivary glands of 132 specimens of *G. brevipalpis* which were successfully dissected, after being fed on guinea-pigs directly inoculated from an infected sheep in which the strain, originally from man, had been maintained by cyclical transmission through *G. morsitans*. *G. brevipalpis* is encroaching and increasing in numbers in this district. He was unable to transmit the trypanosome to healthy guinea-pigs through this fly but the number of experiments was insufficient, and it is important that further work on these lines should be carried out in order to determine the danger of transmission of infection in *brevipalpis* areas.

3. MALARIA.

Report by Dr R. MACKAY, Malaria Research Officer.

Dar es Salaam.

Proposed Anti-Malarial Measures.—An anti-malarial scheme for Dar es Salaam estimated to cost £27,533 was prepared and submitted to government. The proposed scheme provides for the improvement of anopheline breeding places in the creeks on the outskirts of the town, and other more centrally-placed breeding areas, which are known to be the main sources of anopheles. That there is every justification for the proposed expenditure is amply borne out by the results of the malaria unit's work during 1932 and 1933 : a spleen-rate varying between 81 and 97 per cent, a parasite incidence of 74-84 persons per 100 under ten years of age examined, and an anopheline infectivity rate of 5·5 to 7·8 per cent, and other evidence of hyperendemicity are in themselves sufficient reason to press for the institution of major anti-malarial works.

Endemiology.—The data previously collected having been based on material collected from random samples of the population, it was considered desirable to examine, quantitatively and qualitatively, the parasite condition of individuals with a view to checking the results previously obtained, but more particularly to ascertain seasonal changes in parasite species. This investigation is being continued and will be included in a later report of the malaria unit's work.

Control.—In anticipation of the reorganization of the present control system which will become necessary on the completion of the proposed anti-malarial works, and with a view to controlling expenditure on larvicides and on anti-anopheline work which is not strictly routine, the collection of data has begun early in the year to furnish an index for this purpose. For the purposes of this index which would provide comparable data for stated periods, four key positions, being the most heavily infected areas in the town, were selected and the parasite-rate (per cent) and the infestation figure (parasites per one hundred leucocytes) together with the sporozoite rate in anopheles caught in the same areas were ascertained and computed for ten-day periods. The index itself may be stated in terms of the proportion in which the three sets of data occur, or as the ratio between the infestation rate divided by the parasite-rate, and the sporozoite-rate ; or in any other convenient form provided the indices are comparable for periods of ten days. Any abnormal increase in the index will be an indication for increased control, and the whole system would be a useful check on routine control work.

Northern Province.

The malaria officer (Dr D. B. Wilson) prior to his departure early in the year recommended that a malarial survey of the relatively unprotected (by continuous sporozoite inoculation) areas near Moshi should be instituted on his return. Arrangements were accordingly made to carry out this work, which was to include also a survey of the various estates at Usa, where conditions appear to be specially adaptable for "species sanitation." The result of this survey will be reported at a further date.

Survey of Inland Towns.

The main towns on the central railway as well as the Lupa (Mining) Area were visited by the malaria research officer during the year. Initial survey of these places mainly revealed a general problem of definite seasonal malaria during and shortly after the rainy season. The chief mosquito, as elsewhere in the territory, is *A. gambiae*, and most of the breeding-places are man-made : gravel pits, quarries and small depressions providing their quota of larvæ season after season. With the single exception of Mwanza, anopheline propagation is not perennial, nor is the opportunity for maintaining an almost constant supply of sporozoites so apparent as at the coast. The net result is that malaria is sporadic in these insufficiently protected areas which are more liable to outbreaks approaching epidemic magnitude than are the coastal regions (or other areas with perennial breeding and moderately stable population) where the endemic, seasonal outbreak represents an overflow of parasites in a saturated population rather than the direct result of such increased infection as may follow on increased anopheline breeding.

Anti-malarial measures for the improvement of some of these areas have been prepared by the anti-malarial engineer, who has given particular attention to those places where the need at present appears greatest.

LIST OF SCIENTIFIC PAPERS PUBLISHED BY MEMBERS OF THE STAFF IN 1935.

Buchanan, J. C. R. and Sanderson, I.—Ulcers in the Native African. A further investigation. *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1935, 28, 5, pp. 505-510, with one diagram.

Burke-Gaffney, H. J. O'D.—A human case Abortus Fever due to laboratory infection. *E.A.M.J.*, 1935, xi, 8, pp. 235-243.

Corson, J. F.—Experimental Transmission of *Trypanosoma rhodesiense* through antelopes and *Glossina morsitans* to man. *Jl. Trop. Med. and Hyg.*, 1935, 38, 1, pp. 9-11.

Corson, J. F.—A high rate of salivary gland infection of *Glossina morsitans* with *Trypanosoma rhodesiense*. *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1935, 28, 5, pp. 501-504.

Corson, J. F.—Further observations on francolin and guinea-fowl as reservoirs of *Trypanosoma rhodesiense*. *Jl. Trop. Med. and Hyg.*, 1935, 38, 4, pp. 46-47.

Latham, D. V.—Gillan's Oedema. *E.A.M.J.*, 1935, xi, 11, pp. 358-360.

Maclean, G.—[The fight against Rhodesian sleeping sickness in Tanganyika.] Die Bekampfung der Rhodesiense-Form der Schlafkrankheit in Tanganyika. *Arch. f. Schiffs Trop. Hyg.*, 1935, 39, 9, pp. 381-389.

Mackay, R.—Report on work done at Dar es Salaam, during the period January 1932 to January 1934. Seventy-nine pages with thirteen charts and four folding plans. Obtainable from the Crown Agents for the Colonies, 4 Millbank, London, S.W.1. Price Shs. 10/-.

Raymond, W. D.—A note on cases of poisoning by *Jatropha multifida, L.* *E.A.M.J.*, 1935, xi, 2, pp. 57-58.

Smith, W. H.—Native Diet in Zanzibar. *E.A.M.J.*, 1935, xi, 8, pp. 246-251.

Wilson, D. B. and Wilson, M. E.—Infections with *Plasmodium ovale*, Stephens, in Tanganyika Territory. *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1935, 28, 5, pp. 469-474.

Wilson, D. E.—The human incidence of Brucella infections in the cattle-bearing districts of Tanganyika Territory as determined by agglutination tests. *E.A.M.J.*, 1935, xi, 4, pp. 108-110.

AUTHORIZED ESTABLISHMENT OF THE DEPARTMENT.

STAFF.—*European:*

Director of Medical and Sanitary Services.
Deputy Director of Medical Service.
Deputy Director of Sanitary Service. (Not filled.)
Deputy Director of Laboratory Service. (Not filled.)
4 Senior Medical Officers. (One post not filled.)
3 Senior Health Officers.
1 Sleeping Sickness Officer.
1 Medical Specialist.
41 Medical Officers. (Two posts not filled, four paid from Loan funds.)
1 Senior Dental Surgeon.
1 Dental Surgeon.
1 Assistant Bacteriologist.
1 Entomologist. (Not filled.)
1 Analytical Chemist.
1 Matron.
3 Senior Nursing Sisters.
2 Senior Health Visitors. (Not filled.)
6 Health Visitors.
26 Nursing Sisters.
1 Laboratory Assistant.
1 Chief Clerk.
2 European Clerks.
1 Storekeeper.
2 Assistant Storekeepers.
1 Medical Instructor.
1 Assistant Medical Instructor.
1 Superintendent, Mental Hospital.
1 Supervisor of Female Patients, Mental Hospital.
1 Senior Sanitary Superintendent.
20 Sanitary Superintendents. (Three paid from Loan funds.)
1 Dental Mechanic.
7 Agricultural Surveyors.

Asian:

1 Assistant Surgeon.
3 Senior Sub-Assistant Surgeons.
51 Sub-Assistant Surgeons. (One paid from Loan funds.)
28 Compounders. (One post not filled.)
1 Special Grade Clerk.
1 First Grade Clerk.
6 Second Grade Clerks.
12 Third Grade Clerks.
1 Fourth Grade Clerk.

African:

12 Clerks.
96 Dispensers.
140 Sanitary Inspectors.
2 Vaccinators.
Hospital orderlies, nurses and menials: average number employed 760.
Sanitary labourers: average number employed 1,100.
10 Motor Drivers.

APPOINTMENTS.—*European:*

Medical Officers:
  Dr W. Harden Smith from 1st February.
  Dr F. Bell from 16th May.
  Dr A. C. de B. Helme from 15th August.
Nursing Sisters:
  Miss B. M. Gadd from 6th April.
  Miss V. Burgin from 6th April.
  Miss A. F. Chisholm from 18th April.
  Miss C. M. Murray from 1st June.
  Miss E. G. Mills from 27th July.
  Miss B. V. Thompson-Allen from 24th August.
Superintendent, Mental Hospital: Mr D. Mackay from 14th June.
Supervisor of Female Patients, Mental Hospital: Mrs C. Mackay from 12th July.
Assistant Storekeeper: Mr R. M. Jones from 27th February.
Agricultural Surveyor, Sleeping Sickness Branch: Mr C. M. H. Sutherland from 4th May.

ACTING APPOINTMENTS.—*European:*

Deputy Director of Laboratory Service: H. J. O'D. Burke-Gaffney from 1st January to 31st December.
Director of Medical Service: R. R. Scott, M.C., from 1st January to 28th February.
Deputy Director of Medical Service: F. R. Lockhart from 1st August to 31st December.
Deputy Director of Sanitary Service: R. Nixon from 1st January to 31st December.
Senior Health Visitor: A. L. Ryder from 1st January to 31st December.
Senior Medical Officers:
  W. K. Connell from 3rd February to 31st December.
  D. V. Latham from 8th May to 31st December.
  J. Williamson from 11th July to 31st December.
  R. C. Speirs from 1st August to 2nd November.
  F. R. Lockhart from 1st January to 30th July.
Senior Health Officers:
  B. O. Wilkin from 17th May to 31st December.
  W. Harden Smith from 13th June to 31st December.
  W. J. Aitken from 1st January to 17th May.
Chief Clerk: N. M. Moore from 28th April to 20th December.

Asian:

European Clerk: J. de Souza from 1st January to 20th December.
Special Grade Clerk: E. Rebello from 8th October to 31st December.

PROMOTIONS.

Dr R. R. Scott, M.C., to be Director of Medical Service as from 1st March 1935.
Dr G. Maclean, O.B.E., to be Deputy Director of Medical Service as from 1st August 1935.
Dr H. Fairbairn to be Sleeping Sickness Officer as from 1st August 1935.
Miss B. G. Allardes, M.B.E., to be Matron as from 1st January 1935.
Mr J. Hetherington, Assistant Storekeeper, was promoted to be Storekeeper and Pharmacist, Uganda, from 16th November 1935.

RETIREMENTS.—*European:*

Dr A. H. Owen, Director of Medical Service, 28th February 1935.
Miss K. Thompson, Senior Nursing Sister, 15th July 1935.

Asian: Nil.

TRANSFERS.—Nil.

RESIGNATIONS.—*European :*

Miss A. Smith, Nursing Sister, 10th April 1935.

Asian : Nil.

APPOINTMENTS TERMINATED.—*European :*

Miss A. H. Gittins, Nursing Sister, 11th July 1935.
Mr J. H. Stafford, Assistant Medical Instructor, 26th December 1935.

Asian : Nil.

INVALIDINGS.—*European :*

Mr A. S. Newton, Dental Surgeon, 28th October 1935.
Miss E. Haslett, Nursing Sister, 28th February 1935.

Asian : Nil.

DEATHS.—*European :*

Dr J. W. Graham, M.C., Medical Officer, 20th July 1935.
Dr A. H. Owen (late Director of Medical and Sanitary Services), on pension, 10th December 1935.

Asian :

Mr L. M. Dass, Compounder, 16th May 1935.
Mr Mehtab Singh, Compounder, 24th November 1935.

TABLE SHOWING FINANCIAL DETAILS.

From 1st January to 31st December, 1935.

DETAILS OF EXPENDITURE.

Expenditure:	Approved Estimates £	Actual Expenditure £
Personal Emoluments	138,765	134,497
Other Charges:		
Upkeep of Hospitals	6,250	6,141
Upkeep of Quarantine and Infectious Diseases Hospitals	170	137
Tuberculosis Scheme (Kilimanjaro)	295	295
Upkeep of Laboratory, Dar es Salaam	50	44
Upkeep of Lymph Laboratory, Mpwapwa	35	22
Maintenance of Leprosy Patients	2,645	2,405
Maintenance of Mental Patients and Hospitals	1,035	1,483
Epidemic Outbreaks and Special Sanitary Measures	50	172
Sleeping Sickness Measures	3,707	4,469
Venereal Diseases and Yaws	25	22
Maternity and Child Welfare	1,245	1,129
Sanitary Equipment	600	591
Sanitary Oils and Disinfectants	250	243
Medical and Surgical Stores	9,500	11,842
Equipment and Furniture	4,000	3,867
Microscopes and Accessories	150	216
Vaccines and Serum	250	239
Books of Reference	30	26
Periodicals	100	91
Electricity	1,300	1,241
Travelling Allowances	100	404
Transport Allowances	3,300	3,000
Transport	2,000	2,273
Railway Fares and Freight	4,500	6,545
Passages	6,252	7,073
Tents and Camp Equipment	100	110
Uniforms	400	357
Typewriters	50	43
Allowances to Medical Officers for Dental work	50	35
Fees, etc., of Medical Officers attending Courses of Instruction	150	227
Medical Attendance outside the Territory	300	430
Pauper Burials	5	2
Upkeep of Quarantine Station, Zanzibar	825	825
Upkeep of Motor Boats	129	112
Upkeep and Maintenance of Motor Vehicles	700	813
Stationery	275	229
Mass Treatment of Ankylostomiasis	25	—
Bicycles	5	4
Contingencies	100	74
Outfit Allowances	90	180
Post-mortem Fees	5	—
Medical Training of Native Staff outside the Territory	15	15

	Approved Estimates		Actual Expenditure
Contributions, etc.:	£		£
Quinine for Public Purchase at Post Offices ...	1,100	...	2,007
Contribution to Colonial Medical Fund	—		—
Contribution to Bureau of Hygiene and Tropical Diseases	—		—
Contribution to Tropical Diseases Hospital ...	—		—
Contribution to International Office of Public Health	—		—
		...	
Total Other Charges ...	52,163	...	59,433
Personal Emoluments ...	138,765	...	134,497
Total ...	£190,928	...	£193,930

Details of Revenue.

Revenue:	£
From Hospital Fees, Sale of Drugs, etc.	6,610
Fees collected by Marine and Customs Departments for Bills of Health	1,100
Sale of Vaccine Lymph, etc. (Laboratory)	80
Fees for Mechanical Dental work	597
Total ...	£8,387
Reimbursement by Tanganyika Railways for Medical Service ...	2,984
Total ...	£11,371

RAINFALL.

Total rainfall in millimetres by stations from information kindly furnished by the Director, British East African Meteorological Service, Nairobi.

1935.

DISTRICTS	Stations	Feet above sea level	Rainfall in Millimetres
CENTRAL LINE AREA:			
Dar es Salaam	Dar es Salaam ...	30	1133·3
Morogoro	Morogoro	1,628	932·4
Kilosa	Kilosa	1,606	951·2
Dodoma	Dodoma	3,675	529·7
	Manyoni	4,096	602·5
Singida	Mpwapwa	3,700	599·8
	Singida	5,233	538·3
Tabora	Tabora	4,150	728·4
Kahama	Kahama	4,000	848·1
	Nzega	4,000	767·4
Kigoma	Kigoma	2,562	918·3
	Kasulu	4,530	939·1
	Kibondo	4,980	1084·8
COASTAL AREA, SOUTH:			
Lindi	Lindi	S.L.	915·7
Tunduru	Tunduru	2,300	855·9
Masasi	Masasi Mission ...	1,500	825·3
Mikindani	Mikindani	60	865·4
Kilwa	Kilwa	S.L.	1055·5
Liwale	Liwale	1,500	1068·1
Rufiji	Utete	170	837·1
COASTAL AREA, NORTH:			
Tanga	Tanga	S.L.	1513·5
Usambara	Amani	2,834	2090·4
NORTHERN HINTERLAND:			
Moshi	Moshi	2,649	941·1
Arusha	Arusha	4,416	1378·3
Mbulu	Mbulu	5,715	903·4
Mwanza	Mwanza	3,709	963·5
Musoma	Musoma	3,760	680·5
Bukoba	Bukoba	3,726	1768·2
Biharamulo	Biharamulo ...	4,850	926·6
Kondoa	Kondoa-Irangi ...	4,615	626·4
Singida	Mkalama	4,235	749·4
SOUTHERN HINTERLAND:			
Iringa	Iringa	5,365	844·9
Njombe	Njombe	6,400	1361·9
Ufipa	Sumbawanga ...	5,650	809·6
	Rungwe	2,900	—
Mbeya	Mbeya	5,955	893·6
Rungwe	Tukuyu	5,300	3189·6
Songea	Songea	3,826	1233·7

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1934.

ALL RACES.

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
I.—Infectious and Parasitic Diseases.									
1. Typhoid fever	4	46	6	50	3	...	1	1	51
2. Paratyphoid fevers:									
(a) Paratyphoid A	...	5	...	5	...	...	...	...	5
(b) Paratyphoid B	...	30	...	30	1	...	...	...	30
3. Typhus fever	2	3	...	5	...	...	...	...	5
4. Relapsing fever	8	442	7	450	11	643	281	924	1,374
5. Undulant fever	...	16	...	16	1	9	...	9	25
6. Smallpox	...	...	...	...	...	...	...	...	...
7. Measles	...	40	...	40	3	119	77	196	236
8. Scarlet fever	...	...	...	...	...	...	...	...	...
9. Whooping cough	...	14	...	14	...	205	188	393	407
10. Diphtheria	...	2	1	2	...	1	...	1	3
11. Influenza	10	710	7	720	20	2,934	1,308	4,242	4,962
12. Cholera	...	...	...	...	...	...	...	...	...
13. Dysentery:									
(a) Amœbic	7	199	20	206	8	245	81	326	532
(b) Bacillary	1	30	7	31	...	51	24	75	106
(c) Other or unspecified	3	109	6	112	...	491	228	719	831
14. Plague:									
(a) Bubonic	...	...	...	...	...	...	...	...	...
(b) Pneumonic	...	...	...	...	...	...	...	...	...
(c) Septicæmic	...	1	1	1	...	...	...	...	1
(d) Not otherwise defined	...	...	...	...	...	...	...	...	...
15. Erysipelas	...	7	1	7	1	6	2	8	15
16. Acute poliomyelitis	...	1	...	1	...	...	...	...	1
17. Encephalitis lethargica	...	2	1	2	...	...	...	...	2
18. Cerebro-spinal fever	...	11	10	11	...	1	...	1	12
19. Glanders	...	...	...	...	...	...	...	...	...
20. Anthrax	1	6	1	7	...	8	2	10	17
21. Rabies	...	...	...	...	...	...	...	...	...
22. Tetanus	...	35	14	35	2	2	...	2	37
23. Tuberculosis of the respiratory system	51	400	62	451	43	245	78	323	774
24. Tuberculosis of the central nervous system	2	1	1	3	...	...	...	...	3

DISEASES AND DEATHS (ALL RACES)—*contd.*

DISEASES	In-Patients: Remaining in Hospitals at end of 1934	In-Patients: Yearly Total: Admissions	In-Patients: Yearly Total: Deaths	In-Patients: Total Cases Treated	In-Patients: Remaining in Hospitals at end of 1935	Out-Patients: Males	Out-Patients: Females	Out-Patients: Total	Total Cases In- and Out-Patients
25. Tuberculosis of intestines and peritoneum	...	6	1	6	...	...	1	1	7
26. Tuberculosis of vertebral column	6	19	...	25	6	7	5	12	37
27. Tuberculosis of other bones and joints	2	17	2	19	1	14	10	24	43
28. Tuberculosis of skin and subcutaneous tissues	...	7	1	7	2	...	3	3	10
29. Tuberculosis of lymphatic system (abdominal and bronchial glands excepted)	5	37	...	42	3	68	50	118	160
30. Tuberculosis of genito-urinary system	...	3	1	3	...	...	...	...	3
31. Tuberculosis of other organs	4	46	...	50	7	60	54	114	164
32. Disseminated tuberculosis:									
(a) Acute	...	2	1	2	...	...	...	...	2
(b) Chronic	...	...	...	...	...	...	...	...	...
(c) Not distinguished as acute or chronic	...	1	...	1	...	...	1	1	2
33. Leprosy	56	107	10	163	25	130	46	176	339
34. Syphilis:									
(a) Congenital	1	30	4	31	1	509	524	1,033	1,064
(b) Acquired—				...					
1. Primary	22	623	...	645	24	5,949	4,171	10,120	10,765
2. Secondary	27	248	2	275	15	2,342	1,787	4,129	4,404
3. Tertiary	10	144	6	154	11	2,370	3,965	6,335	6,489
4. Unspecified	2	44	2	46	1	899	667	1,566	1,612
35. Other venereal diseases:									
1. Gonorrhœal or purulent ophthalmia	1	39	...	40	4	72	37	109	149
2. Other diseases included under 35:	5	273	4	278	18	461	53	514	792
Gonorrhœa	38	581	7	619	31	7,198	967	8,165	8,784
Soft Chancre	...	21	...	21	...	14	...	14	35
36. Purulent infection, septicæmia:									
(a) Septicæmia	...	17	10	17	1	1	2	3	20
(b) Pyæmia	1	8	5	9	...	...	...	...	9
(c) Gas gangrene	...	2	...	2	...	...	...	...	2
37. Yellow fever	...	...	...	...	...	...	...	...	...
38. Malaria:									
Tertian	1	49	...	50	...	183	55	238	288
Quartan	...	...	...	...	...	83	65	148	148
Subtertian	46	3,979	57	4,025	53	18,303	7,738	26,041	30,066
Cachexia	1	70	2	71	2	639	366	1,005	1,082
Cerebral	...	6	4	6	...	...	...	...	...
Unspecified	8	755	4	763	9	9,094	3,596	12,690	13,453

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
39. Other diseases due to protozoa:									
Leishmaniasis	...	...	...	...	...	...	...	...	...
Kala-azar	...	...	...	...	...	...	...	...	...
Rat-bite fever	...	1	...	1	...	1	1	2	3
Spirochætosis ictero-hæmorrhagica	...	...	...	...	...	...	...	...	...
Trypanosomiasis	15	123	23	138	11	40	2	42	180
Yaws	65	1,391	4	1,456	64	38,007	31,300	69,307	70,763
40. Ankylostomiasis	76	1,658	164	1,734	85	6,444	3,768	10,212	11,946
41. Hydatid cysts	...	1	...	1	...	3	...	3	4
42. Other diseases due to helminths:	...	5	...	5	...	12	8	20	25
Cestodes (Tæniasis)	2	216	1	218	5	10,512	3,889	14,401	14,619
Nematodes (not including Ankylostoma):	...	2	...	2	...	37	26	63	65
Ascariasis	4	94	...	98	1	5,287	4,657	9,944	10,042
Dracontiasis (guinea worm)	...	...	...	...	...	...	1	1	1
Filarial elephantiasis	20	194	3	214	15	157	28	185	399
Filariasis...	1	21	2	22	1	47	8	55	77
Oxyuris vermicularis	...	2	...	2	...	88	43	131	133
Trichiniasis	...	...	...	...	...	3	2	5	5
Tricocephalus dispar	...	...	...	...	...	12	8	20	20
Trematodes:	...	...	...	...	...	2	2	4	4
Schistosomiasis	22	437	8	459	11	3,396	644	4,040	4,499
43. Mycoses:									
1. Actinomycosis	...	1	...	1	...	61	16	77	78
2. Other mycoses	...	8	1	8	...	216	104	320	328
44. Other infectious or parasitic diseases:									
1. Vaccinia	...	1	1	1	...	106	50	156	157
2. Other sequelæ of vaccination (infective)	...	...	...	...	...	172	82	254	254
3. German measles	...	2	...	2	...	7	1	8	10
4. Varicella (Chickenpox)	...	128	...	128	8	225	39	264	392
5. Mumps	...	23	1	23	1	181	103	284	307
6. Other diseases included under 44—	...								
Blackwater fever	...	55	22	55	...	2	...	2	57
Dengue	...	8	...	8	...	...	...	...	8
Sandfly fever (Phlebotomus or Pappataci fever)	...	...	...	...	...	...	...	...	...

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
II.—Cancer and Other Tumours.									
45-53. Malignant tumours:									
45. Cancer of the buccal cavity and pharynx...	1	7	2	8	...	5	2	7	15
46. Cancer of the digestive organs and peritoneum	1	20	12	21	3	1	...	1	22
47. Cancer of the respiratory organs	...	1	...	1	...	...	...	...	1
48. Cancer of the uterus	...	2	...	2	...	...	2	2	4
49. Cancer of other female genital organs	...	5	2	5	...	...	3	3	8
50. Cancer of the breast	...	1	...	1	1	...	...	...	1
51. Cancer of the male genito-urinary organs	1	4	1	5	1	...	...	...	5
52. Cancer of the skin	...	5	1	5	...	...	...	...	5
53. Cancer of other or unspecified organs	...	19	5	19	...	...	...	...	19
54. Non-malignant tumours:									
(a) Female genital organs	3	32	5	35	...	...	3	3	38
(b) Other sites	1	121	3	122	5	16	5	21	143
55. Tumours of undetermined nature:									
(a) Female genital organs	...	5	...	5	1	...	3	3	8
(b) Other sites	...	35	1	35	2	12	9	21	56
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and Other General Diseases.									
56. Rheumatic fever	2	48	...	50	3	205	100	305	355
57. Chronic rheumatism, Osteo-arthritis	5	231	2	236	15	4,432	1,768	6,200	6,436
58. Gout	...	...	...	...	...	24	15	39	39
59. Diabetes (not including Insipidus)	...	11	1	11	...	6	...	6	17
60. Scurvy	7	291	12	298	9	44	5	49	347
61. Beri-beri	2	8	1	10	1	4	...	4	14
62. Pellagra	1	3	...	4	...	1	...	1	5
63. Rickets	...	7	...	7	...	31	16	47	54
64. Osteomalacia	...	1	...	1	...	6	3	9	10
65. Diseases of the pituitary gland	...	...	...	...	...	...	...	...	...
66. Diseases of the thyroid and parathyroid glands:									
(a) Simple goitre	...	3	...	3	...	3	7	10	13
(b) Exophthalmic goitre	...	1	...	1	...	1	3	4	5
(c) Myxœdema, Cretinism	...	...	...	...	...	...	...	...	...
(d) Tetany	...	2	...	2	...	1	...	1	3
(e) Other diseases of the thyroid or parathyroid glands ...	...	1	1	1	...	2	2	4	5
67. Diseases of the thymus	...	...	...	...	...	...	...	...	...

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospital at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
68. Diseases of the adrenals (non-tuberculous)	...	...	...	...	...	...	...	...	...
69. Other general diseases:									
1. Amyloid disease of unstated origin	...	1	...	1	...	...	...	...	1
2. Other diseases included under 69	1	53	8	54	2	228	70	298	352
IV.—Diseases of the Blood and Blood-Forming Organs.									
70. Hæmorrhagic conditions:									
(a) Purpura	...	...	...	...	...	5	...	5	5
(b) Hæmophillia	...	...	...	...	...	...	...	...	...
71. Anæmia, chlorosis:									
(a) Pernicious anæmia	...	2	...	2	...	2	2	4	6
(b) Other anæmias and chlorosis	...	...	...	...	...	...	...	...	...
1. Splenic anæmias	1	5	2	6	...	63	54	117	123
2. Other diseases included under 71 (b)	5	61	4	66	3	792	375	1,167	1,233
72. Leukæmia, Aleukæmia:									
(a) Leukæmia	...	2	...	2	...	3	1	4	6
(b) Aleukæmia (Lymphadenoma)	...	3	...	3	...	1	...	1	4
73. Diseases of the spleen:									
1. Banti's disease	...	1	...	1	...	...	...	...	1
2. Other diseases of the spleen	2	73	4	75	1	1,451	822	2,273	2,348
74. Other diseases of the blood and blood-forming organs	...	9	1	9	...	11	4	15	24
V.—Chronic Poisoning.									
75. Alcoholism (acute or chronic)	...	4	...	4	...	1	...	1	5
76. Chronic poisoning by other organic substances	...	1	...	1	...	...	...	...	1
77. Chronic poisoning by mineral substances	...	1	...	1	...	...	...	...	1
VI.—Diseases of the Nervous and Sense Organs.									
78. Encephalitis (not including Lethargica: *see* 17):									
(a) Cerebral abscess	...	1	1	1	...	...	...	...	1
(b) Other diseases included under 78	1	...	...	1	...	17	12	29	30
79. Meningitis	...	11	9	11	...	...	...	...	11
80. Tabes dorsalis (Locomotor ataxy)	...	5	...	5	...	2	1	3	8

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
81. Other diseases of the spinal cord:									
1. Progressive muscular atrophy	...	...	...	...	...	...	...	...	...
2. Subacute combined sclerosis	...	...	...	...	...	...	...	...	...
3. Myelitis of unstated origin	...	3	1	3	...	...	...	...	3
4. Other diseases included under 81	1	3	1	4	...	2	3	5	9
82. Cerebral hæmorrhage, Apoplexy, etc.:									
(a) 1. Cerebral hæmorrhage	...	8	7	8	1	...	...	...	8
2. Apoplexy (lesion unstated)	...	1	...	1	...	...	...	...	1
(b) 1. Cerebral embolism	...	1	...	1	...	...	...	...	1
2. Cerebral thrombosis	...	...	...	...	...	...	...	...	...
3. Cerebral softening	...	...	...	...	...	...	...	...	...
(c) 1. Hemiplegia	4	39	4	43	3	21	9	30	73
2. Other paralyses of unstated origin	7	53	11	60	2	20	8	28	88
83. General paralysis of the insane	...	2	...	2	...	2	...	2	4
84. Other forms of insanity	2	51	...	53	3	51	11	62	115
85. Epilepsy	6	101	4	107	3	156	43	199	306
86. Infantile convulsions (under 5 years of age)	...	7	...	7	...	2	2	4	11
87. Other diseases of the nervous system:									
(a) Chorea	...	3	...	3	...	2	...	2	5
(b) Neuritis, neuralgia	6	191	1	197	5	6,940	2,437	9,377	9,574
(c) Paralysis agitans	...	10	2	10	1	5	1	6	16
(d) Disseminated sclerosis	...	1	...	1	...	...	...	...	1
(e) Other diseases included under 87	3	87	1	90	4	567	205	772	862
88. Diseases of the eye and annexa:									
Blepharitis	1	18	...	19	2	360	176	536	555
Cataract (all forms)	9	132	...	141	6	127	57	184	325
Conjunctivitis	11	391	...	402	9	15,073	10,917	25,990	26,392
Glaucoma	...	7	...	7	1	18	7	25	32
Iritis	2	58	...	60	1	264	109	373	433
Keratitis	1	57	...	58	4	126	61	187	245
Ophthalmia (not including Neonatorum: *see* 35 (1))	2	38	...	40	2	149	70	219	259
Optic Neuritis	2	6	1	8	...	20	10	30	38
Trachoma	4	64	...	68	4	320	192	512	580
Other diseases of the eye	1	85	...	86	5	274	76	350	436
89. Diseases of the ear and of the mastoid sinus:									
(a) Otitis and other diseases of the ear	5	102	2	107	1	5,887	2,910	8,797	8,904
(b) Diseases of the mastoid sinus	1	11	...	12	...	242	83	325	337

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
VII.—Diseases of the Circulatory System.									
90. Pericarditis	1	6	1	7	...	...	...	...	7
91. Acute endocarditis:									
1. Malignant endocarditis	...	...	...	...	...	...	...	...	...
2. Other acute endocarditis	...	1	...	1	...	...	...	...	1
92. Chronic endocarditis, Valvular disease:									
1. Aortic valve disease	...	1	...	1	...	1	...	1	2
2. Mitral valve disease	...	11	3	11	...	13	7	20	31
3. Aortic and mitral valve disease	...	2	2	2	...	...	...	...	2
4. Endocarditis not returned as acute or chronic	...	...	...	...	...	...	...	...	...
5. Other or unspecified valve diseases	3	24	6	27	...	160	60	220	247
93. Diseases of the myocardium:									
(a) Acute myocarditis	...	1	1	1	...	3	1	4	5
(b) Myocardial degeneration:									
1. Fatty heart	...	1	1	1	...	...	...	...	1
2. Cardiovascular degeneration	...	...	...	...	...	...	1	1	1
3. Other diseases included under 93 (b)	...	1	...	1	...	3	...	3	4
(c) Myocarditis not distinguished as acute or chronic ...	...	2	...	2	...	6	...	6	8
94. Diseases of the coronary arteries, Angina pectoris	...	4	2	4	...	11	...	11	15
95. Other diseases of the heart:									
(a) Disordered action of heart	...	17	1	17	1	135	67	202	219
(b) Other diseases included under 95	...	21	4	21	...	116	74	190	211
96. Aneurysm	...	1	...	1	...	...	...	...	1
97. Arterio-sclerosis	...	1	1	1	...	2	...	2	3
98. Gangrene	3	50	17	53	1	12	2	14	67
99. Other diseases of the arteries	...	...	...	...	...	...	...	...	...
100. Diseases of the veins (varix, hæmorrhoids, phlebitis, etc.):									
1. Varix—									
Hæmorrhoids	...	48	1	48	1	106	11	117	165
Varicocele	...	2	...	2	1	7	...	7	9
Varicose veins	...	6	...	6	...	19	2	21	27
2. Other diseases of the veins—									
Phlebitis	...	13	...	13	...	35	7	42	55

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total: Admissions	Yearly Total: Deaths	Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
101. Diseases of the lymphatic system (Lymphangitis, etc.):									
Lymphadenitis	3	164	...	167	8	856	189	1,045	1,212
Lymphangitis	1	24	...	25	1	105	33	138	163
102. Abnormalities of blood pressure	...	...	...	...	...	5	...	5	5
103. Other diseases of the circulatory system	...	15	1	15	...	32	7	39	54
VIII.—Diseases of the Respiratory System.									
104. Diseases of the nasal fossæ and annexa:									
1. Diseases of the nose	2	143	...	145	...	5,849	1,930	7,779	7,924
2. Diseases of the accessory nasal sinuses	...	21	...	21	...	395	141	536	557
105. Diseases of the larynx	...	15	1	15	...	548	193	741	756
106. Bronchitis:									
(a) Acute bronchitis	3	553	3	556	13	17,607	8,893	26,500	27,056
(b) Chronic bronchitis	4	229	7	233	10	3,244	1,691	4,935	5,168
(c) Bronchitis not distinguished as acute or chronic	2	82	...	84	1	16,190	7,663	23,853	23,937
107. Broncho-pneumonia	1	260	82	261	10	206	122	328	589
108. Lobar pneumonia	25	940	224	965	27	245	86	331	1,296
109. Pneumonia (not otherwise defined)	1	27	8	28	...	17	6	23	51
110. Pleurisy:									
1. Empyema	1	10	1	11	...	2	1	3	14
2. Other pleurisy	4	149	8	153	4	300	78	378	531
111. Congestion and hæmorrhagic infarct of lung, etc.	...	6	...	6	...	72	22	94	100
112. Asthma	7	147	2	154	3	568	203	771	925
113. Pulmonary emphysema	...	1	...	1	...	6	...	6	7
114. Other diseases of the respiratory system:									
(a) Chronic interstitial pneumonia, including occupational diseases of the lung	...	1	...	1	...	...	...	...	1
(b) Other diseases included under 114	3	20	2	23	...	668	353	1,021	1,044
IX.—Diseases of the Digestive System.									
115. Diseases of the buccal cavity, pharynx, etc.:									
1. Diseases of the teeth and gums	2	160	1	162	4	9,766	5,230	14,996	15,158
2. Ludwig's angina	...	2	1	2	...	...	...	...	2
3. Diseases of the tonsils	2	150	2	152	1	2,905	1,376	4,281	4,433
4. Other diseases included under 115	6	129	4	135	...	3,269	1,169	4,438	4,573
116. Diseases of the œsophagus	...	1	...	1	...	29	7	36	37

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
117. Ulcer of the stomach or duodenum:									
(a) Ulcer of the stomach	2	13	1	15	1	26	2	28	43
(b) Ulcer of the duodenum	...	4	...	4	...	50	2	52	56
118. Other diseases of the stomach:									
1. Inflammation of the stomach	...	50	1	50	...	854	457	1,311	1,361
2. Other diseases included under 118	2	101	2	103	2	1,018	637	1,655	1,758
119 and 120. Diarrhœa and Enteritis:									
Under two years (a) 1. Colitsi	1	56	3	57	...	1,436	824	2,260	2,317
2. Other diarrhœa and enteritis	2	102	16	104	2	1,826	1,352	3,178	3,282
(b) Ulceration of the intestines	...	1	1	1	...	1	...	1	2
Over two years (a) 1. Colitis	...	127	2	127	3	1,668	698	2,366	2,493
2. Other diarrhœa and enteritis	10	724	53	734	6	4,907	1,999	6,906	7,640
(b) Ulceration of the intestines	...	10	1	10	...	8	1	9	19
121. Appendicitis	3	68	4	71	3	12	1	13	84
122. Hernia, intestinal obstruction:									
(a) Hernia—									
1. Strangulated hernia	6	68	14	74	5	10	...	10	84
2. Hernia not returned as strangulated	22	598	5	620	38	131	...	131	751
(b) Intestinal obstruction	1	20	16	21	...	8	2	10	31
123. Other diseases of the intestines:									
1. Constipation, intestinal stasis	3	274	...	277	2	27,270	14,564	41,834	42,111
2. Diverticulitis	...	...	...	...	...	...	...	...	...
3. Other diseases included under 123	8	166	6	174	2	1,041	451	1,492	1,666
124. Cirrhosis of the liver:									
(a) Returned as alcoholic	...	13	2	13	...	1	...	1	14
(b) Not returned as alcoholic	2	45	13	47	4	26	2	28	75
125. Other diseases of the liver:									
1. Acute yellow atrophy	...	...	...	...	...	1	2	3	3
2. Other diseases included under 125	4	179	17	183	7	572	206	778	961
126. Biliary calculi	...	...	...	...	...	...	...	...	...
127. Other diseases of the gall bladder and ducts:									
1. Cholecystitis without record of biliary calculi	...	10	2	10	...	3	4	7	17
2. Other diseases included under 127	1	11	2	12	2	23	11	34	46
128. Diseases of the pancreas	...	1	...	1	...	1	...	1	2
129. Peritonitis without stated cause	...	10	3	10	...	...	...	...	10

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
X.—Non-venereal Diseases of the Genito-Urinary System and Annexa.									
130. Acute nephritis	3	31	9	34	1	60	24	84	118
131. Chronic nephritis	1	34	6	35	2	20	14	34	69
132. Nephritis not stated to be acute or chronic	1	18	2	19	6	24	13	37	56
133. Other diseases of the kidney and annexa:									
(a) Pyelitis...	...	19	...	19	3	20	13	33	52
(b) Other diseases included under 133	2	11	3	13	1	47	11	58	71
134. Calculi of the urinary passages:									
(a) Calculi of kidney and ureter...	...	2	...	2	...	2	...	2	4
(b) Calculi of the bladder	...	6	...	6	...	...	...	...	6
(c) Calculi of unstated site	...	5	...	5	...	...	...	...	5
135. Diseases of the bladder:									
(a) Cystitis...	8	90	6	98	4	186	48	234	332
(b) Other diseases of the bladder	1	22	3	23	2	50	11	61	84
136. Diseases of the urethra, urinary abscess, *etc.*:									
(a) Stricture of the urethra	15	187	17	202	12	55	...	55	257
(b) Other diseases of the urethra, etc.	13	76	2	89	2	80	4	84	173
137. Diseases of the prostate	3	14	2	17	...	13	...	13	30
138. Diseases of the male genital organs	39	1,411	10	1,450	47	1,125	...	1,125	2,575
139. Diseases of the female genital organs (*see* 48 and 49 and Sec. XI):									
(a) Diseases of the ovary, fallopian tube and parametrium ...	2	56	2	58	6	...	51	51	109
(b) Diseases of the uterus	...	61	...	61	3	...	289	289	350
(c) Diseases of the breast	1	47	...	48	3	...	547	547	595
(d) Other diseases of the female genital organs	1	42	1	43	1	...	148	148	191
XI.—Diseases of Pregnancy, Childbirth and the Puerperal State.									
140. Post-abortive sepsis	...	3	1	3	...	...	4	4	7
141. Abortion not returned as septic:									
1. Hæmorrhage following abortion	1	20	...	21	...	...	20	20	41
2. Without record of hæmorrhage	1	63	2	64	2	...	22	22	86
142. Ectopic gestation	...	3	...	3	...	...	1	1	4
143. Other accidents of pregnancy	1	44	2	45	1	...	77	77	122
144. Puerperal hæmorrhage:									
(a) Placenta prævia	...	5	1	5	...	...	...	...	5
(b) Other puerperal hæmorrhage	...	23	2	23	...	...	2	2	25

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
145. Puerperal sepsis:									
(a) Puerperal septicæmia and pyæmia ...	...	30	13	30	1	...	1	1	31
(b) Puerperal tetanus ...	...	...	...	...	...	...	...	...	...
146. Puerperal albuminuria and convulsions:									
1. Puerperal convulsions ...	...	...	...	...	...	...	...	...	...
2. Other conditions included under 146 ...	...	8	...	8	...	...	...	...	8
147. Other toxæmias of pregnancy ...	2	20	...	22	1	...	6	6	28
148. Puerperal phlegmasia alba dolens, embolism and sudden death:									
(a) Puerperal phlegmasia alba dolens not returned as septic	...	...	...	...	...	...	...	...	...
(b) Puerperal embolism and sudden death ...	...	...	...	...	...	...	...	...	...
149. Other accidents of childbirth ...	1	99	8	100	...	...	5	5	105
150. Other or unspecified conditions of the puerperal state:									
1. Puerperal insanity ...	...	...	...	...	...	...	...	...	...
2. Puerperal diseases of the breast ...	...	3	...	3	...	...	108	108	111
3. Childbirth ...	10	548	5	558	5	...	422	422	980
XII.—Diseases of the Skin and Cellular Tissue.									
151. Carbuncle, boil ...	...	101	1	101	3	1,934	373	2,307	2,408
152. Cellulitis, acute abscess:									
1. Cellulitis ...	16	437	7	453	14	2,797	691	3,488	3,941
2. Acute abscess ...	35	940	10	975	34	3,284	1,097	4,381	5,356
153. Other diseases of the skin and its annexa:									
(a) Eczema ...	4	104	...	108	2	2,196	830	3,026	3,134
(b) Herpes ...	...	19	...	19	...	268	102	370	389
(c) Impetigo ...	...	11	...	11	...	212	101	313	324
(d) Pediculosis ...	...	...	...	...	...	54	15	69	69
(e) Psoriasis ...	...	12	1	12	...	234	113	347	359
(f) Scabies ...	1	116	...	117	4	10,833	4,933	15,766	15,883
(g) Sebaceous cyst ...	3	59	...	62	3	23	6	29	91
(h) Ulcers ...	296	3,255	35	3,551	280	35,951	10,986	46,937	50,488
(i) Urticaria ...	2	42	1	44	1	597	171	768	812
(j) Others ...	...	62	...	62	4	882	358	1,240	1,302

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
XIII.—Diseases of the Bones and Organs of Locomotion.									
154. Acute infective osteomyelitis and periostitis	14	62	3	76	10	73	21	94	170
155. Other diseases of the bones	19	181	13	200	13	491	184	675	875
156. Diseases of the joints and other organs of locomotion:									
(a) Diseases of the joints...	23	288	5	311	20	2,424	457	2,881	3,192
(b) Diseases of other organs of locomotion	12	261	...	273	1	9,144	2,879	12,023	12,296
XIV.—Congenital Malformations.									
157. Congenital malformations:									
(a) Congenital hydrocephalus	...	...	...	...	...	...	...	...	...
(b) Spina bifida and meningocele	...	2	...	2	...	...	...	...	2
(c) Congenital malformations of heart	...	...	...	...	...	...	...	...	...
(d) Monstrosities	...	...	...	...	...	...	...	...	...
(e) Other congenital malformations—									
1. Congenital pyloric stenosis	...	...	...	...	...	...	...	...	...
2. Cleft palate, harelip	...	...	...	...	...	...	...	...	...
3. Imperforate anus	...	2	1	2	...	...	...	...	2
4. Other stated congenital malformations	...	2	...	2	...	15	6	21	23
XV.—Diseases of Early Infancy.									
158. Congenital debility	...	28	4	28	1	88	28	116	144
159. Premature birth	...	4	1	4	...	...	...	...	4
160. Injury at birth:									
(a) With mention of cæsarean section	...	...	...	...	...	...	...	...	...
(b) Without mention of cæsarean section	...	1	...	1	...	...	...	...	1
161. Other diseases peculiar to early infancy:									
(a) Atelectasis	...	...	...	...	...	...	1	1	1
(b) Icterus neonatorum	...	...	...	...	...	1	2	3	3
(c) Other diseases included under 161	...	9	2	9	1	37	39	76	85
XVI.—Old Age.									
162. Old Age:									
(a) Senile dementia	...	6	3	6	...	67	50	117	123
(b) Other forms of senile decay	...	85	26	85	1	238	87	325	410

DISEASES	In-Patients					Out-Patients			Total Cases In-and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
XVII.—Affections Produced by External Causes.									
163. Suicide by solid or liquid poisons and corrosive substances ...	...	1	...	1	...	...	...	...	1
164. Suicide by poisonous gas	...	...	...	...	...	...	...	...	...
165. Suicide by hanging or strangulation	...	4	1	4	...	...	...	...	4
166. Suicide by drowning...	...	1	...	1	...	...	...	...	1
167. Suicide by firearms	...	...	...	...	...	...	...	...	...
168. Suicide by cutting or piercing instruments	...	5	2	5	...	...	...	...	5
169. Suicide by jumping from high place	...	...	...	...	...	...	...	...	...
170. Suicide by crushing	...	...	...	...	...	...	...	...	...
171. Suicide by other means	...	...	...	...	...	...	...	...	...
172. Infanticide (under one year)	...	...	...	...	...	...	...	...	...
173. Homicide by firearms	...	...	...	...	...	...	...	...	...
174. Homicide by cutting or piercing instruments	...	12	...	12	...	17	7	24	36
175. Homicide by other means	...	...	...	...	...	1	1	2	2
176. Attack by venomous animals	2	91	3	93	8	199	71	270	363
177. Food poisoning	...	22	...	22	...	2	4	6	28
178. Accidental absorption of irrespirable or poisonous gas	...	...	...	...	...	...	...	...	...
179. Other acute accidental poisoning (not by gas)	...	9	1	9	...	...	...	...	9
180. Conflagration	8	50	9	58	2	184	99	283	341
181. Accidental burns (conflagration excepted)	11	211	31	222	13	1,322	615	1,937	2,159
182. Accidental mechanical suffocation	...	1	...	1	...	3	1	4	5
183. Accidental drowning	...	...	...	...	...	...	...	...	...
184. Accidental injury by firearms	1	29	5	30	2	10	2	12	42
185. Accidental injury by cutting or piercing instruments	30	1,004	25	1,034	37	9,538	2,663	12,201	13,235
186. Accidental injury by fall, crushing, etc.	29	1,037	20	1,066	72	12,475	3,311	15,786	16,852
187. Cataclysm	...	...	...	...	...	...	...	...	...
188. Injury by animals (poisoning by venomous animals excepted)	18	171	17	189	16	232	63	295	484
189. Hunger or thirst	...	1	...	1	...	1	1	2	3
190. Excessive cold	...	...	...	...	...	...	...	...	...
191. Excessive heat	...	3	...	3	...	6	...	6	9
192. Lightning	...	1	...	1	...	...	...	...	1
193. Electricity (lightning excepted)	...	2	...	2	...	...	...	...	2

Diseases and Deaths (All Races)—*contd.*

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
194. Other and unstated forms of accidental violence:									
1. Inattention at birth	...	...	...	...	...	...	...	...	...
2. Other causes included under 194	47	731	25	778	31	5,722	1,040	6,762	7,540
195. Violent deaths of unstated nature (i.e. accidental, suicidal, etc.)	...	8	2	8	...	...	...	...	8
196. Wounds of war	...	...	...	...	...	...	...	...	...
197. Execution of civilians by belligerent armies	...	...	...	...	...	...	...	...	...
198. Execution	...	...	...	...	...	...	...	...	...
XVIII.—Ill-defined Diseases.									
199. Sudden deaths	...	...	...	...	...	...	...	...	...
200. Cause of death unstated or ill-defined	...	...	...	...	...	...	...	...	...
201. Pyrexia of uncertain origin	...	80	1	80	1	113	51	164	244
202. Other ill-defined diseases	17	287	23	304	9	1,732	770	2,502	2,806
Total ...	1,467	35,206	1,537	36,673	1,462	365,860	176,799	542,659	579,332
Total cases treated by Medical Staff on tour	...	...	...	...	...	31,620	28,611	60,231	60,231
Total cases treated by African Dispensers	46	1,768	91	1,814	244	87,950	52,874	140,824	142,638
Total cases treated by Missionaries supplied with Government drugs and equipment	11	114	7	125	9	...	...	32,232	32,357
Grand Total ...	1,524	37,088	1,635	38,612	1,715	485,430	258,284	775,946	814,558

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1935.

EUROPEANS (OFFICIAL AND NON-OFFICIAL).

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
I.—Infectious and Parasitic Diseases.									
1. Typhoid fever	1	6	...	7	...	...	...	...	7
2. Paratyphoid fevers:									
(a) Paratyphoid A	...	5	...	5	...	...	...	...	5
(b) Paratyphoid B	1	4	...	5	1	...	...	...	5
3. Typhus fever	...	...	...	...	...	...	...	...	...
4. Relapsing fever	1	9	...	10	...	1	1	2	12
5. Undulant fever	...	1	...	1	...	1	...	1	2
6. Smallpox	...	...	...	...	...	...	...	...	...
7. Measles	...	3	...	3	...	...	1	1	4
8. Scarlet fever	...	...	...	...	...	...	...	...	...
9. Whooping cough	...	1	...	1	...	1	...	1	2
10. Diphtheria	...	...	...	...	...	...	...	...	...
11. Influenza	2	85	...	87	1	30	16	46	133
12. Cholera	...	...	...	...	...	...	...	...	...
13. Dysentery:									
(a) Amœbic	1	36	...	37	...	21	14	35	72
(b) Bacillary	...	5	...	5	...	...	1	1	6
(c) Other or unspecified	...	6	...	6	...	13	8	21	27
14. Plague:									
(a) Bubonic	...	...	...	...	...	...	...	...	...
(b) Pneumonic	...	...	...	...	...	...	...	...	...
(c) Septicæmic	...	...	...	...	...	...	...	...	...
(d) Not otherwise defined	...	...	...	...	...	...	...	...	...
15. Erysipelas	...	...	...	...	...	...	...	...	...
16. Acute poliomyelitis	...	...	...	...	...	...	...	...	...
17. Encephalitis lethargica	...	...	...	...	...	...	...	...	...
18. Cerebro-spinal fever	...	1	1	1	...	...	...	...	1
19. Glanders	...	...	...	...	...	...	...	...	...
20. Anthrax	...	...	...	...	...	...	...	...	...
21. Rabies	...	...	...	...	...	...	...	...	...
22. Tetanus	...	...	...	...	...	...	...	...	...
23. Tuberculosis of the respiratory system	...	4	...	4	1	...	2	2	6

Diseases and Deaths (Europeans)—*contd.*

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
24. Tuberculosis of the central nervous system	...	...	...	...	...	...	...	...	...
25. Tuberculosis of intestines and peritoneum	...	...	...	...	...	...	...	...	...
26. Tuberculosis of vertebral column	1	...	...	1	1	...	1	1	2
27. Tuberculosis of other bones and joints	...	...	...	...	...	...	...	...	...
28. Tuberculosis of skin and subcutaneous tissues	...	...	...	...	...	...	...	...	...
29. Tuberculosis of lymphatic system (abdominal and bronchial glands excepted)	...	...	...	...	...	...	...	...	...
30. Tuberculosis of genito-urinary system	...	...	...	...	...	...	...	...	...
31. Tuberculosis of other organs	...	...	...	...	...	...	...	...	...
32. Disseminated tuberculosis:									
(a) Acute	...	...	...	...	...	...	...	...	...
(b) Chronic	...	...	...	...	...	...	...	...	...
(c) Not distinguished as acute or chronic	...	...	...	...	...	...	...	...	...
33. Leprosy	...	...	...	...	...	...	...	...	...
34. Syphilis:									
(a) Congenital	...	...	...	...	...	...	...	...	...
(b) Acquired:									
1. Primary	...	...	...	...	...	3	...	3	3
2. Secondary	...	...	...	...	...	...	...	...	...
3. Tertiary	...	...	...	...	...	2	...	2	2
4. Unspecified	...	1	...	1	...	3	4	7	8
35. Other venereal diseases:									
1. Gonorrhœal or purulent ophthalmia	...	...	...	...	...	...	...	...	...
2. Other diseases included under 35	...	3	...	3	...	1	...	1	4
Gonorrhœa	...	3	...	3	...	12	2	14	17
Soft Chancre	...	...	...	...	...	...	...	...	...
36. Purulent infection, septicæmia:									
(a) Septicæmia	...	4	1	4	...	1	2	3	7
(b) Pyæmia	...	...	...	...	...	...	...	...	...
(c) Gas gangrene	...	...	...	...	...	...	...	...	...
37. Yellow fever	...	...	...	...	...	...	...	...	...
38. Malaria:									
Tertian	...	2	...	2	...	1	...	1	3
Quartan	...	...	...	...	...	1	...	1	1
Subtertian	3	435	4	438	1	106	64	170	608
Cachexia	...	3	...	3	...	5	2	7	10
Unspecified	2	79	...	81	...	32	26	58	139

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
39. Other diseases due to protozoa:									
Leishmaniasis	...	...	...	...	...	...	...	...	...
Kala-azar	...	...	...	...	...	...	...	...	...
Rat-bite fever	...	...	...	...	...	...	...	...	...
Spirochætosis ictero-hæmorrhagica	...	...	...	...	...	...	...	...	...
Trypanosomiasis	...	3	...	3	...	...	...	...	3
Yaws	...	...	...	...	...	...	1	1	1
40. Ankylostomiasis	...	4	1	4	...	5	3	8	12
41. Hydatid cysts	...	...	...	...	...	...	...	...	...
42. Other diseases due to helminths:	...	...	...	...	...	1	1	2	2
Cestodes (Tæniasis)	...	9	...	9	...	4	2	6	15
Nematodes (not including Ankylostoma)	...	...	...	...	...	...	...	...	...
Ascariasis	...	1	...	1	...	1	...	1	2
Dracontiasis (guinea worm)	...	...	...	...	...	...	...	...	...
Filarial elephantiasis	...	...	...	...	...	...	...	...	...
Filariasis	...	...	...	...	...	...	...	...	...
Oxyuris vermicularis	...	2	...	2	...	...	1	1	3
Trichiniasis	...	...	...	...	...	...	...	...	...
Tricocephalus dispar	...	...	...	...	...	...	...	...	...
Trematodes	...	...	...	...	...	...	...	...	...
Schistosomiasis	...	1	...	1	...	1	...	1	2
43. Mycoses:									
1. Actino mycosis	...	...	...	...	...	1	...	1	1
2. Other mycoses	...	...	...	...	...	4	4	8	8
44. Other infectious or parasitic diseases:									
1. Vaccinia	...	1	...	1	...	13	3	16	17
2. Other sequelæ of vaccination (infective)	...	...	...	...	...	...	...	...	...
3. German measles	...	1	...	1	...	1	...	1	2
4. Varicella (Chickenpox)	...	1	...	1	...	1	...	1	2
5. Mumps	...	...	...	...	...	...	...	...	...
6. Other diseases included under 44—									
Blackwater fever	...	19	7	19	...	1	...	1	20
Dengue	...	8	...	8	...	...	...	...	8
Sandfly fever (Phlebotomus or Papataci fever)	...	...	...	...	...	...	...	...	...

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
II.—Cancer and Other Tumours.									
45-53. Malignant tumours:									
45. Cancer of the buccal cavity and pharynx	...	...	...	...	...	1	...	1	1
46. Cancer of the digestive organs and peritoneum	...	2	1	2	...	...	...	...	2
47. Cancer of the respiratory organs	...	...	...	...	...	...	...	...	...
48. Cancer of the uterus	1	...	...	1	...	...	1	1	2
49. Cancer of other female genital organs	...	...	...	...	...	...	1	1	1
50. Cancer of the breast	...	...	...	...	...	...	...	...	...
51. Cancer of the male genito-urinary organs	...	1	...	1	...	...	...	...	1
52. Cancer of the skin	...	...	...	...	...	...	...	...	...
53. Cancer of other or unspecified organs	...	...	...	...	...	...	...	...	...
54. Non-malignant tumours:									
(a) Female genital organs	...	3	...	3	...	...	3	3	6
(b) Other sites	...	...	...	...	...	1	...	1	1
55. Tumours of undetermined nature:									
(a) Female genital organs	...	...	...	...	...	...	...	...	...
(b) Other sites	...	...	...	...	...	1	...	1	1
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and Other General Diseases.									
56. Rheumatic fever	...	1	...	1	...	1	...	1	2
57. Chronic rheumatism, Osteo-arthritis	...	6	...	6	...	27	8	35	41
58. Gout	...	1	...	1	...	...	...	...	1
59. Diabetes (not including Insipidus)	...	2	...	2	...	1	...	1	3
60. Scurvy	...	...	...	...	...	...	...	...	...
61. Beri-beri	...	...	...	...	...	...	...	...	...
62. Pellagra	...	...	...	...	...	...	...	...	...
63. Rickets	...	...	...	...	...	...	1	1	1
64. Osteomalacia	...	...	...	...	...	...	...	...	...
65. Diseases of the pituitary gland	...	...	...	...	...	...	...	...	...
66. Diseases of the thyroid and parathyroid glands:									
(a) Simple goitre	...	1	...	1	...	...	...	...	1
(b) Exophthalmic goitre	...	...	...	...	...	...	2	2	2
(c) Myxœdema, Cretinism	...	...	...	...	...	...	...	...	...
(d) Tetany	...	...	...	...	...	...	...	...	...
(e) Other diseases of the thyroid or parathyroid glands	...	...	...	...	...	...	2	2	2
67. Diseases of the thymus	...	...	...	...	...	...	...	...	...

DISEASES	In-Patients					Out-Patients			Total Cases In-and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
68. Diseases of the adrenals (non-tuberculous)	...	...	...	...	...	...	...	...	...
69. Other general diseases:									
1. Amyloid disease of unstated origin	...	...	...	...	...	...	...	...	...
2. Other diseases included under 69	...	4	...	4	...	10	6	16	20
IV.—Diseases of the Blood and Blood-Forming Organs.									
70. Hæmorrhagic conditions:									
(a) Purpura	...	...	...	...	...	...	...	...	...
(b) Hæmophilia	...	...	...	...	...	...	1	1	1
71. Anæmia, chlorosis:									
(a) Pernicious anæmia	...	1	...	1	...	...	...	...	1
(b) Other anæmias and chlorosis—									
1. Splenic anæmias	...	...	...	...	...	...	...	...	...
2. Other diseases included under 71 (b)	...	3	...	3	...	7	7	14	17
72. Leukæmia, Aleukæmia:									
(a) Leukæmia	...	...	...	...	...	...	...	...	...
(b) Aleukæmia (Lymphadenoma)	...	...	...	...	...	...	...	...	...
73. Diseases of the spleen:									
1. Banti's disease	...	...	...	...	...	...	...	...	...
2. Other diseases of the spleen	...	...	...	...	...	...	...	...	...
74. Other diseases of the blood and blood-forming organs	...	5	...	5	...	...	...	...	5
V.—Chronic Poisoning.									
75. Alcoholism (acute or chronic)	...	2	...	2	...	1	...	1	3
76. Chronic poisoning by other organic substances	...	...	...	...	...	...	...	...	...
77. Chronic poisoning by mineral substances	...	...	...	...	...	...	...	...	...
VI.—Diseases of the Nervous and Sense Organs.									
78. Encephalitis (not including Lethargica: *see* 17):									
(a) Cerebral abscess	...	...	...	...	...	...	...	...	...
(b) Other diseases included under 78	1	...	...	1	...	...	...	...	1
79. Meningitis	...	1	1	1	...	...	...	...	1
80. Tabes dorsalis (Locomotor ataxy)	...	...	...	...	...	...	...	...	...

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
81. Other diseases of spinal cord:									
1. Progressive muscular atrophy	...	...	...	...	...	...	...	...	...
2. Subacute combined sclerosis	...	...	...	...	...	...	...	...	...
3. Myelitis of unstated origin	...	...	...	...	...	...	...	...	...
4. Other diseases included under 81	...	...	...	...	...	...	...	...	...
82. Cerebral hæmorrhage, Apoplexy, etc.:									
(a) 1. Cerebral hæmorrhage	...	...	...	...	...	...	...	...	...
2. Apoplexy (lesion unstated)	...	...	...	...	...	...	...	...	...
(b) 1. Cerebral embolism	...	...	...	...	...	...	...	...	...
2. Cerebral thrombosis	...	...	...	...	...	...	...	...	...
3. Cerebral softening	...	...	...	...	...	...	...	...	...
(c) 1. Hemiplegia	...	3	...	3	...	...	...	...	3
2. Other paralyses of unstated origin	...	...	...	...	...	1	...	1	1
83. General paralysis of the insane	...	...	...	...	...	...	...	...	...
84. Other forms of insanity	...	...	...	...	...	1	...	1	1
85. Epilepsy	...	...	...	...	...	...	...	...	...
86. Infantile convulsions (under 5 years of age)	...	1	...	1	...	...	...	...	1
87. Other diseases of the nervous system:									
(a) Chorea	...	...	...	...	...	...	...	...	...
(b) Neuritis, neuralgia	...	20	...	20	1	27	16	43	63
(c) Paralysis agitans	...	...	...	...	...	...	...	...	...
(d) Disseminated sclerosis	...	...	...	...	...	...	...	...	...
(e) Other diseases included under 87	...	16	...	16	...	16	14	30	46
88. Diseases of the eye and annexa:									
Blepharitis	...	...	...	...	...	1	1	2	2
Cataract (all forms)	...	...	...	...	...	...	1	1	1
Conjunctivitis	...	10	...	10	...	25	14	39	49
Glaucoma	...	...	...	...	...	...	...	...	...
Iritis	...	...	...	...	...	1	...	1	1
Keratitis	...	...	...	...	...	...	...	...	...
Ophthalmia (not including Neonatorum: *see* 35 (1))	...	...	...	...	...	...	...	...	...
Optic Neuritis	...	...	...	...	...	...	...	...	...
Trachoma	...	...	...	...	...	1	...	1	1
Other diseases of the eye	...	5	...	5	...	17	6	23	28
89. Diseases of the ear and of the mastoid sinus:									
(a) Otitis and other diseases of the ear	...	12	...	12	...	103	38	141	153
(b) Diseases of the mastoid sinus	...	1	...	1	...	6	...	6	7

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
VII.—Diseases of the Circulatory System.									
90. Pericarditis	...	...	...	...	...	...	...	...	...
91. Acute endocarditis:									
1. Malignant endocarditis	...	...	...	...	...	...	...	...	...
2. Other acute endocarditis	...	...	...	...	...	...	...	...	...
92. Chronic endocarditis, Valvular disease:									
1. Aortic valve disease	...	...	...	...	...	...	...	...	...
2. Mitral valve disease	...	...	...	...	...	1	...	1	1
3. Aortic and mitral valve disease	...	...	...	...	...	...	...	...	...
4. Endocarditis not returned as acute or chronic	...	...	...	...	...	...	...	...	...
5. Other or unspecified valve diseases	...	...	...	...	...	3	3	6	6
93. Diseases of the myocardium:									
(a) Acute myocarditis	...	...	...	...	...	1	...	1	1
(b) Myocardial degeneration	...	1	1	1	...	...	...	...	1
1. Fatty heart	...	1	...	1	...	...	...	...	1
2. Cardiovascular degeneration	...	...	...	...	...	...	1	1	1
3. Other diseases included under 93 (b)	...	1	...	1	...	...	...	...	1
(c) Myocarditis not distinguished as acute or chronic ...	...	1	...	1	...	...	1	1	2
94. Diseases of the coronary arteries, Angina pectoris	...	1	...	1	...	1	...	1	2
95. Other diseases of the heart:									
(a) Disordered action of heart	1	4	1	5	...	1	5	6	11
(b) Other diseases included under 95	...	...	...	...	...	...	...	...	...
96. Aneurysm	...	...	...	...	...	...	...	...	...
97. Arterio-sclerosis	...	1	1	1	...	...	...	...	1
98. Gangrene	...	...	...	...	...	...	...	...	...
99. Other diseases of the arteries	...	...	...	...	...	...	...	...	...
100. Diseases of the veins (varix, hæmorrhoids, phlebitis, etc.):									
1. Varix—									
Hæmorrhoids	...	6	...	6	...	15	2	17	23
Varicocele	...	...	...	...	...	1	...	1	1
Varicose veins	...	...	...	...	...	4	...	4	4
2. Other diseases of the veins—									
Phlebitis	...	2	...	2	...	...	1	1	3

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
101. Diseases of the lymphatic system (Lymphangitis, etc.):									
Lymphadenitis	...	5	...	5	...	6	4	10	15
Lymphangitis	...	2	...	2	...	...	...	...	2
102. Abnormalities of blood pressure	...	...	...	...	...	...	6	6	6
103. Other diseases of the circulatory system	...	3	1	3	...	4	2	6	9
VIII.—Diseases of the Respiratory System.									
104. Diseases of the nasal fossæ and annexa:									
1. Diseases of the nose	...	32	...	32	...	63	22	85	117
2. Diseases of the accessory nasal sinuses	...	13	...	13	...	12	4	16	29
105. Diseases of the larynx	...	7	...	7	...	5	1	6	13
106. Bronchitis:									
(a) Acute bronchitis	...	11	...	11	...	28	9	37	48
(b) Chronic bronchitis	...	...	...	...	...	6	1	7	7
(c) Bronchitis not distinguished as acute or chronic	...	14	...	14	...	17	10	27	41
107. Broncho-pneumonia	...	1	1	1	...	...	...	...	1
108. Lobar pneumonia	...	13	2	13	1	...	...	...	13
109. Pneumonia (not otherwise defined)	...	1	...	1	...	1	...	1	2
110. Pleurisy:									
1. Empyema	...	...	...	...	...	...	...	...	...
2. Other pleurisy	...	7	...	7	...	3	...	3	10
111. Congestion and hæmorrhagic infarct of lung, etc.	...	2	...	2	...	3	...	3	5
112. Asthma	...	18	...	18	...	9	3	12	30
113. Pulmonary emphysema	...	...	...	...	...	1	...	1	1
114. Other diseases of the respiratory system:									
(a) Chronic interstitial pneumonia, including occupational diseases of the lung	...	1	...	1	...	...	...	...	1
(b) Other diseases included under 114	...	2	...	2	...	11	4	15	17
IX.—Diseases of the Digestive System.									
115. Diseases of the buccal cavity, pharynx, etc.:									
1. Diseases of the teeth and gums	...	23	...	23	...	72	47	119	142
2. Ludwig's angina	...	1	...	1	...	...	...	...	1
3. Diseases of the tonsils	...	44	...	44	...	53	41	94	138
4. Other diseases included under 115	...	19	...	19	...	47	23	70	89
116. Diseases of the œsophagus	...	1	...	1	...	...	...	...	1

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
117. Ulcer of the stomach or duodenum:									
(a) Ulcer of the stomach	...	4	...	4	1	7	...	7	11
(b) Ulcer of the duodenum	...	4	...	4	...	5	3	8	12
118. Other diseases of the stomach:									
1. Inflammation of the stomach	...	9	...	9	...	13	3	16	25
2. Other diseases included under 118	...	22	1	22	...	60	17	77	99
119 and 120. Diarrhœa and Enteritis:									
Under two years (a) 1. Colitis	...	3	...	3	...	3	6	9	12
2. Other diarrhœa and enteritis	...	16	...	16	...	11	13	24	40
(b) Ulceration of the intestines	...	...	...	...	...	...	...	...	...
Over two years (a) 1. Colitis	...	8	...	8	...	12	4	16	24
2. Other diarrhœa and enteritis	1	73	...	74	...	59	22	81	155
(b) Ulceration of the intestines	...	...	...	...	...	...	...	...	...
121. Appendicitis	...	34	1	34	1	10	1	11	45
122. Hernia, intestinal obstruction:									
(a) Hernia—									
1. Strangulated hernia	...	...	...	...	...	...	...	...	...
2. Hernia not returned as strangulated	...	4	...	4	...	7	...	7	11
(b) Intestinal obstruction	...	...	...	...	...	...	...	...	...
123. Other diseases of the intestines:									
1. Constipation, intestinal stasis	...	13	...	13	...	19	21	40	53
2. Diverticulitis	...	...	...	...	...	...	...	...	...
3. Other diseases included under 123	...	5	...	5	...	3	4	7	12
124. Cirrhosis of the liver:									
(a) Returned as alcoholic	...	...	...	...	...	...	...	...	...
(b) Not returned as alcoholic	...	1	1	1	...	...	...	...	1
125. Other diseases of the liver:									
1. Acute yellow atrophy	...	...	...	...	...	...	...	...	...
2. Other diseases included under 125	...	10	...	10	...	9	5	14	24
126. Biliary calculi	...	...	...	...	...	...	...	...	...
127. Other diseases of the gall bladder and ducts:									
1. Cholecystitis without record of biliary calculi	...	3	...	3	...	2	3	5	8
2. Other diseases included under 127	...	1	...	1	...	...	...	...	1
128. Diseases of the pancreas	...	...	...	...	...	...	...	...	...
129. Peritonitis without stated cause	...	3	1	3	...	...	...	...	3

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
X.—Non-venereal Diseases of the Genito-Urinary System and Annexa.									
130. Acute nephritis	...	...	...	...	...	...	4	4	4
131. Chronic nephritis	...	...	...	...	...	...	...	...	...
132. Nephritis not stated to be acute or chronic	...	2	...	2	...	2	2	4	6
133. Other diseases of the kidney and annexa:									
(a) Pyelitis...	...	9	...	9	...	3	11	14	23
(b) Other diseases included under 133	...	2	...	2	...	2	4	6	8
134. Calculi of the urinary passages:									
(a) Calculi of kidney and ureter...	...	1	...	1	...	...	...	...	1
(b) Calculi of the bladder	...	...	...	...	...	...	...	...	...
(c) Calculi of unstated site	...	...	...	...	...	...	...	...	...
135. Diseases of the bladder:									
(a) Cystitis...	...	7	...	7	2	11	7	18	25
(b) Other diseases of the bladder	...	2	...	2	...	1	1	2	4
136. Diseases of the urethra, urinary abscess, etc.:									
(a) Stricture of the urethra	...	3	1	3	...	2	...	2	5
(b) Other diseases of the urethra, etc.	...	1	...	1	...	2	1	3	4
137. Diseases of the prostate	...	1	...	1	...	1	...	1	2
138. Diseases of the male genital organs	...	4	...	4	...	14	...	14	18
139. Diseases of the female genital organs (*see* 48 and 49 and Sec. XI):									
(a) Diseases of the ovary, fallopian tube and parametrium ...	...	8	...	8	...	...	11	11	19
(b) Diseases of the uterus	...	16	...	16	...	...	33	33	49
(c) Diseases of the breast	...	8	...	8	...	...	2	2	10
(d) Other diseases of the female genital organs	...	1	...	1	...	...	10	10	11
XI.—Diseases of Pregnancy, Childbirth and the Puerperal State.									
140. Post-abortive sepsis	...	...	...	...	...	...	4	4	4
141. Abortion not returned as septic:									
1. Hæmorrhage following abortion	...	6	...	6	...	...	2	2	8
2. Without record of hæmorrhage	...	4	...	4	...	...	...	...	4
142. Ectopic gestation	...	2	...	2	...	...	1	1	3
143. Other accidents of pregnancy	...	14	...	14	...	...	33	33	47
144. Puerperal hæmorrhage:									
(a) Placenta prœvia	...	...	...	...	...	...	...	...	...
(b) Other puerperal hæmorrhage	...	1	...	1	...	...	...	...	1

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
145. Puerperal sepsis:									
(a) Puerperal septicæmia and pyæmia	...	3	...	3	...	...	...	...	3
(b) Puerperal tetanus	...	...	...	...	...	...	...	...	...
146. Puerperal albuminuria and convulsions:									
1. Puerperal convulsions	...	...	...	...	...	...	...	...	...
2. Other conditions included under 146	...	4	...	4	...	...	...	...	4
147. Other toxæmias of pregnancy	1	15	...	16	...	...	2	2	18
148. Puerperal phlegmasia alba dolens, embolism and sudden death:									
(a) Puerperal phlegmasia alba dolens not returned as septic	...	...	...	...	...	...	...	...	...
(b) Puerperal embolism and sudden death	...	...	...	...	...	...	...	...	...
149. Other accidents of childbirth	...	9	...	9	...	...	1	1	10
150. Other or unspecified conditions of the puerperal state:									
1. Puerperal insanity	...	...	...	...	...	...	...	...	...
2. Puerperal diseases of the breast	...	...	...	...	...	...	...	...	...
3. Childbirth	4	63	1	67	2	...	15	15	82

XII.—Diseases of the Skin and Cellular Tissue.

DISEASES	Remaining in Hospitals at end of 1934	Admissions	Deaths	Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	Total Cases In- and Out-Patients
151. Carbuncle, boil	...	12	...	12	...	57	27	84	96
152. Cellulitis, acute abscess:									
1. Cellulitis	...	14	...	14	...	13	3	16	30
2. Acute abscess	...	18	...	18	...	27	9	36	54
153. Other diseases of the skin and its annexa:									
(a) Eczema	...	5	...	5	...	14	10	24	29
(b) Herpes	...	...	...	...	...	9	...	9	9
(c) Impetigo	...	3	...	3	...	10	3	13	16
(d) Pediculosis	...	...	...	...	...	...	...	...	...
(e) Psoriasis	...	...	...	...	...	...	...	...	...
(f) Scabies	...	...	...	...	...	2	...	2	2
(g) Sebaceous cyst	...	...	...	...	...	9	1	10	10
(h) Ulcers	...	12	...	12	...	47	12	59	71
(i) Urticaria	...	6	...	6	...	15	18	33	39
(j) Others	...	14	...	14	...	42	27	69	83

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
XIII.—Diseases of the Bones and Organs of Locomotion.									
154. Acute infective osteomyelitis and periostitis	...	1	...	1	...	...	...	...	1
155. Other diseases of the bones	...	2	...	2	...	3	2	5	7
156. Diseases of the joints and other organs of locomotion:									
(a) Diseases of the joints...	...	8	...	8	...	15	1	16	24
(b) Diseases of other organs of locomotion	...	5	...	5	...	35	9	44	49
XIV.—Congenital Malformations.									
157. Congenital malformations:									
(a) Congenital hydrocephalus	...	...	...	...	...	...	...	...	...
(b) Spina bifida and meningocele	...	...	...	...	...	...	...	...	...
(c) Congenital malformations of heart	...	...	...	...	...	...	...	...	...
(d) Monstrosities	...	...	...	...	...	...	...	...	...
(e) Other congenital malformations—									
1. Congenital pyloric stenosis	...	...	...	...	...	...	...	...	...
2. Cleft palate, harelip	...	...	...	...	...	...	...	...	...
3. Imperforate anus	...	...	...	...	...	...	...	...	...
4. Other stated congenital malformations	...	...	...	...	...	...	1	1	1
XV.—Diseases of Early Infancy.									
158. Congenital debility	...	4	...	4	...	5	1	6	10
159. Premature birth	...	...	...	...	...	...	...	...	...
160. Injury at birth:									
(a) With mention of cæsarean section	...	...	...	...	...	...	...	...	...
(b) Without mention of cæsarean section	...	...	...	...	...	...	...	...	...
161. Other diseases peculiar to early infancy:									
(a) Atelectasis	...	...	...	...	...	...	1	1	1
(b) Icterus neonatorum	...	...	...	...	...	...	...	...	...
(c) Other diseases included under 161	...	...	...	...	...	1	2	3	3
XVI.—Old Age.									
162. Old Age:									
(a) Senile dementia	...	...	...	...	...	...	...	...	...
(b) Other forms of senile decay	...	1	...	1	...	1	...	1	2

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
XVII.—Affections Produced by External Causes.									
163. Suicide by solid or liquid poisons and corrosive substances	...	...	...	...	...	...	...	...	...
164. Suicide by poisonous gas	...	...	...	...	...	...	...	...	...
165. Suicide by hanging or strangulation	...	...	...	...	...	...	...	...	...
166. Suicide by drowning	...	...	...	...	...	...	...	...	...
167. Suicide by firearms	...	...	...	...	...	...	...	...	...
168. Suicide by cutting or piercing instruments	...	1	...	1	...	...	...	...	1
169. Suicide by jumping from high place	...	...	...	...	...	...	...	...	...
170. Suicide by crushing	...	...	...	...	...	...	...	...	...
171. Suicide by other means	...	...	...	...	...	...	...	...	...
172. Infanticide (under one year)	...	...	...	...	...	...	...	...	...
173. Homicide by firearms	...	...	...	...	...	...	...	...	...
174. Homicide by cutting or piercing instruments	...	...	...	...	...	...	...	...	...
175. Homicide by other means	...	...	...	...	...	...	...	...	...
176. Attack by venomous animals	...	3	...	3	...	12	4	16	19
177. Food poisoning	...	3	...	3	...	...	...	...	3
178. Accidental absorption of irrespirable or poisonous gas	...	...	...	...	...	...	...	...	...
179. Other acute accidental poisoning (not by gas)	...	2	...	2	...	...	...	...	2
180. Conflagration	...	...	...	...	...	...	...	...	...
181. Accidental burns (conflagration excepted)	...	5	...	5	...	8	...	8	13
182. Accidental mechanical suffocation	...	...	...	...	...	...	...	...	...
183. Accidental drowning	...	...	...	...	...	...	...	...	...
184. Accidental injury by firearms	...	...	...	...	...	...	...	...	...
185. Accidental injury by cutting or piercing instruments	...	6	...	6	...	18	3	21	27
186. Accidental injury by fall, crushing, etc.	...	35	1	35	...	59	19	78	113
187. Cataclysm	...	...	...	...	...	...	...	...	...
188. Injury by animals (poisoning by venomous animals excepted)	1	4	...	5	...	5	6	11	16
189. Hunger or thirst	...	...	...	...	...	...	...	...	...
190. Excessive cold	...	...	...	...	...	...	...	...	...
191. Excessive heat	...	3	...	3	...	6	...	6	9
192. Lightning	...	...	...	...	...	...	...	...	...
193. Electricity (lightning excepted)	...	...	...	...	...	...	...	...	...

Diseases and Deaths (Europeans)—*contd.*

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remaining in Hospitals at end of 1934	Yearly Total		Total Cases Treated	Remaining in Hospitals at end of 1935	Males	Females	Total	
		Admissions	Deaths						
194. Other and unstated forms of accidental violence:									
1. Inattention at birth	...	...	...	...	...	...	...	...	...
2. Other causes included under 194	1	23	...	24	...	49	15	64	88
195. Violent deaths of unstated nature (i.e. accidental, suicidal, etc.)	...	...	...	...	...	...	...	...	...
196. Wounds of war	...	...	...	...	...	...	...	...	...
197. Execution of civilians by belligerent armies	...	...	...	...	...	...	...	...	...
198. Execution	...	...	...	...	...	...	...	...	...
XVIII.—Ill-defined Diseases.									
199. Sudden deaths	...	...	...	...	...	...	...	...	...
200. Cause of death unstated or ill-defined	...	...	...	...	...	...	...	...	...
201. Pyrexia of uncertain origin	1	22	...	23	...	13	9	22	45
202. Other ill-defined diseases	...	55	...	55	1	57	32	89	144
Total ...	24	1,751	30	1,775	14	1,674	932	2,606	4,381

Annual Report of the Laboratory and Research Division, 1935

INTRODUCTION.

This report covers the activities of the Laboratory and Research Division for the year ending the 31st December, 1935, thus constituting the sixteenth annual report of the laboratory since its reorganization under the British administration.

The close of the year 1935 has seen a further reorganization of the division, the results of which are expected to take a practical form early in 1936. An extension of the scope of the laboratories, with a corresponding alteration of the titles held by the permanent officers, has been effected, and it is hoped that the coming year will show a definite extension of the territorial functions of this unit.

The first step in the new organization was taken in May 1935, with the institution of a clinical laboratory in the Sewa Hadji hospital, Dar es Salaam. In 1936 it is proposed to extend the activities of the Lymph Institute in Mpwapwa, and to create sub-laboratories in at least two other stations. This scheme is discussed more fully under a separate heading.

STAFF.

Dr H. J. O'D. Burke-Gaffney, Acting Deputy Director of Laboratory Service, was on duty throughout the year.

Dr D. E. Wilson was transferred from Mpwapwa to Dar es Salaam on the 27th April, 1935, and remained on duty until the end of the year.

Dr H. G. Calwell, from the Sleeping Sickness branch, worked in the laboratory upon a special investigation connected with *G. brevipalpis* from the 20th August until the 11th October, 1935.

Mr W. D. Raymond, Analytical Chemist, proceeded on leave on the 17th November, 1935.

Mr H. Hammond, Laboratory Assistant, proceeded on leave on the 28th April and returned on the 16th December, 1935.

Mr Amar Singh, Clerk, was on duty throughout the year.

One African laboratory attendant left the service and two probationary laboratory attendants have been appointed; one to the main laboratory, the other to the clinical laboratory, Sewa Hadji hospital.

The staff of the combined laboratories during the year consisted of the following: Acting Deputy Director of Laboratory Service, Dr H. J. O'D. Burke-Gaffney; Medical Officer (seconded), Dr D. E. Wilson; Analytical Chemist, Mr W. D. Raymond; Laboratory Assistant, Mr H. Hammond; Clerk, Mr Amar Singh; Laboratory Attendants, Abdul Dhiwan, Yohana Mkande, Mesheck Ndlwana, Zebron Nicodemus, Alexander Kyanyamara, Augustine Sendeu, and eight subordinates.

Through the courtesy of the Director of Veterinary Services, it was possible to arrange that Mr M. H. French, Chemist, would undertake some of the more pressing chemical work for the period of Mr Raymond's leave. This

Mr French has kindly agreed to do, and in addition to undertaking numerous examinations on our behalf in Mpwapwa, has already paid two vists to this laboratory.

It is unfortunate that continued staff shortage necessitated again the temporary closure of the Vaccine Lymph Institute and the transfer of stocks to Dar es Salaam. It is hoped in the coming year to avoid this breach of continuity by appropriate staff postings.

At the close of the year, the office of Deputy Director of Laboratory Service was abolished, the post of Assistant Bacteriologist replaced by that of Senior Pathologist, and the title of Analytical Chemist altered to that of Government Analyst.

FINANCIAL.

	Shs.	Cts.
Expenditure:		
Upkeep of Laboratory	837	70
Upkeep of Lymph Institute	437	00
Total ...	1,274	70
Revenue:		
Laboratory fees	1,947	25
Sale of lymph to other Governments	1,600	00
Total ...	3,547	25

This is not a true financial statement, as other items are shown under departmental accounts.

BUILDINGS AND EQUIPMENT.

Plans for the much-needed extension of the laboratory buildings and for the rebuilding of the animal houses were submitted during the year, but funds could not be found for the purpose. It will be difficult to delay these extensions longer without interfering seriously with the efficiency of existing work and rendering abortive any attempt to extend it.

MUSEUM AND LIBRARY.

Additions to these units continue steadily, but their arrangement is hampered by the lack of accommodation for specimens and volumes. The room used as a dispensary for the European hospital since 1919 became available at the close of the year, and it is intended to instal the library and museum therein at an early date.

INSTRUCTIONAL COURSES FOR AFRICAN ASSISTANTS.

The classes in pathology, anatomy and physiology, chemistry and physics, in connection with the Medical Training School at the Sewa Hadji hospital have now become a permanent feature of the work of the laboratory staffs. Regular courses, with a systematic syllabus, are now proceeding, and the results so far show great promise, both as regards the standards obtained, and the keenness of the students. A text book of Clinical Pathology for the use of these students has been prepared and is now available from the Government Printer.

MICROSCOPES.

The control and organization of microscope issues and repairs was taken over by this division in 1935. It is intended that supervision over the disposition and general condition of the instruments should be maintained, and repairs effected locally as far as possible. It is anticipated that the placing of microscopes under one authority will facilitate closer control of this organization.

CO-OPERATION.

Exchange of information and material, and closer co-operation with other laboratories was maintained. In the typing of strains of Brucella, considerable assistance, which is gratefully acknowledged, was provided by the Chief Veterinary Research Officer, Kabete, Kenya Colony. Histopathological specimens were exchanged with Nairobi and specimens of serum and antigens for the Kahn test with Zanzibar.

Co-operation was also effected with the entomologists in Kenya and Uganda and with the bacteriologist in Kenya, in connection with problems having a common interest.

A strain of seed-lymph was supplied to the Stack Laboratories in Khartoum, to enable that institution to prepare a new strain of anti-variolous vaccine. Certain specimens were also sent to Professor Turnbull of the London Hospital and to Professor Leiper of the London School of Hygiene and Tropical Medicine. The division was fortunate in having had the pleasure of visits during the year from a number of distinguished workers, notably Sir Malcolm Hailey, Sir Malcolm Watson, Dr Gautier of the League of Nations Health Committee, and Dr. Orenstein of the Rand Mines.

CONTRIBUTIONS BY THE STAFF TO SCIENTIFIC LITERATURE DURING THE YEAR.

Burke-Gaffney, H. J. O'D. :

"A Human Case of Abortus Fever due to Laboratory Infection." *E.A.M.J.*, November.

"An Outline of Clinical Pathology for African Medical Assistants." Government Printer, Dar es Salaam.

"The Use of Vaccines and Sera." Medical Department Pamphlet No. 12.

Wilson, D. E. :

"The Human Incidence of Brucella Infections in a Cattle-bearing district of Tanganyika Territory as determined by Agglutination Tests." *E.A.M.J.*, July, 100 (1935).

"Human Brucellosis in Tanganyika Territory." *Trans. Roy. Soc. Trop. Med. Hyg.*, XXIX (4), 363 (1936).

"The Pathogenicity of Tanganyika strains of *Br. abortus* and *Br. melitensis* for a local species of Monkey (*Cercopithecus* sp.)." *Jl. Hyg.* (In the press.) (1936.)

Raymond, W. D. :

"A Note on Cases of Poisoning by *Jatropha multifida* L." *E.A.M.J.*, May, 1935.

"The Poisonous effects of some local species of Euphorbia." *E.A.M.J.*, March, 1936.

"Native Materia Medica." *Tanganyika Notes and Records*, No. 1, 1936.

"Methods for the Examination of Arrow Poisons." *Analyst.*, (II). (In the press.)

Raymond, W. D., and French, H. M. :

"A Preliminary Note on the Composition of Dairy Products of Tanganyika Territory." *Analyst.* (In the press.)

WORK OF THE DIVISION.

There was a notable increase in the amount of routine work undertaken during the year. Although the staff was at no period at full strength, it was found possible to extend both the amount and the range of the routine work undertaken.

On the pathological side, the transfer of a considerable amount of clinical investigations to the Sewa Hadji hospital left the main laboratory free to undertake more pressing investigations. It was found possible to undertake the commencement of special pieces of research for the first time for some years.

The chemical section also showed a marked increase in the amount of work performed. The Analytical Chemist was in a position to undertake a number of investigations having a practical economic bearing, the fruits of which, it is hoped, will show themselves in ensuing years.

The routine examinations carried out by the combined sections amounted to a little short of twenty-two thousand, a gratifying increase of nearly five thousand over any previous year and an increase of 6,150 or forty per cent over 1934.

It is felt that the stage has been reached when extension of the laboratory's activities can be delayed no longer. The formation of the clinical laboratory in the Sewa Hadji hospital has been a step in this direction. It is intended that henceforth the Lymph Institute, Mpwapwa, will function as a general laboratory in addition, gradually taking over the routine pathological work for the majority of the stations west of Dodoma on the Central line. This will have the advantages of bringing laboratory facilities nearer to the stations, giving the officer in charge of the laboratory continuous opportunity of gaining experience in general laboratory work and relieving the pressure of work in the main laboratory.

It is also proposed to institute small clinical laboratories in out-stations, to serve in the larger stations as a nucleus for properly-equipped and fully-functioning laboratories when circumstances permit. The Northern and Lake provinces are in particular need of such facilities. It is hoped that in 1936, laboratory units, staffed at first with trained Africans, will be established in Mwanza and Tanga or Moshi. The question of small sub-laboratories attached to the hospitals in Bukoba and Tabora is also under consideration. The organization in these cases would amount to an extension of such facilities as are at present available with trained native microscopists.

It is hoped that the uneconomic practice, inevitable in recent years, of closing the Lymph Institute for leave periods will be avoided in 1936. The added burden of work on the central staff, the unsatisfactory conditions of lymph control and the cessation of manufacture with an accompanying break in continuity, combine to produce a state of affairs which is neither efficient nor within the bounds of safety.

This section of the report is divided into the following parts :—

Part I.—Pathological Section :
(a) Main laboratory.
(b) Clinical laboratory, Sewa Hadji hospital.
(c) Laboratory, Mpwapwa.
,, II.—Lymph Production.
,, III.—Chemical Section.
,, IV.—Special Investigations.
,, V.—Appendices.

PART I.—PATHOLOGICAL SECTION.

(a).—MAIN LABORATORY, DAR ES SALAAM.

Dr Wilson took charge of the routine division for the latter half of the year.

This report is presented under the following heads : (1) Parasitology, (2) Serology, (3) Other blood examinations, (4) General examinations, (5) Bacteriology, (6) Public Health examinations, (7) Medico-legal examinations, (8) Pathological examinations.

(1) PARASITOLOGY.

(a) *Blood films.*—Two thousand eight hundred and twenty-six were examined with the following results :—

	Europeans	Asiatics	Africans	Total
P. falciparum	90	148	308	546
P. vivax	—	1	3	4
Trypanosoma ? sp.	—	—	—	—
Sp. duttoni	—	—	3	3
Mf. bancrofti	—	1	7	8
Total positive	90	150	321	561
Negative	595	757	913	2,265
Total films	685	907	1,234	2,826

(b) *Fæces.*—Five hundred and seventy-six specimens were examined for parasites :—

	Europeans	Asiatics	Africans	Total
Ova of *A. lumbricoides*	1	—	3	4
,, *A. duodenale*	11	5	133	149
,, *T. trichiura*	1	2	4	7
,, *T. saginata*	1	—	4	5
,, *O. vermicularis*	—	—	1	1
,, *Sch. mansoni*	—	—	—	—
,, *Sch. hæmatobium*	—	—	1	1
Larvæ of *Ankylostoma*	—	—	—	—
,, *Strongyloides*	—	—	18	18
E. histolytica	3	—	—	3
Flagellates	3	—	3	6
Positive fæces	20	7	167	194
Negative ,,	173	49	160	382
Total	193	56	327	576

(c) *Urine.*—One hundred and nine specimens for ova :—

	Europeans	Asiatics	Africans	Total
Sch. hæmatobium	—	—	40	40
Negative	2	7	60	69
Total	2	7	100	109

(2) SEROLOGY.

There was a considerable increase in the number of sera sent for test, the total amounting to two thousand. The results of the different tests are shown below :—

(a) *The Wassermann Test.*—Blood :—

	Europeans	Asiatics	Africans	Total
Positive	16	21	217	254
Doubtful	5	2	40	47
Negative	94	62	254	410
Anti-complementary	6	6	34	46
Total	121	91	545	757

Thirteen specimens of cerebro-spinal fluid were also examined :—

	Europeans	Asiatics	Africans	Total
Positive	—	—	2	2
Doubtful	—	—	—	—
Negative	1	1	9	11
Total	1	1	11	13

(b) *The Kahn Test* :—

	Europeans	Asiatics	Africans	Total
Positive	13	21	229	263
Doubtful	7	4	46	57
Negative	94	61	248	403
Total	114	86	523	723

Some disagreements between the two tests were noted this year. In a few cases, conflicting results persisted upon retesting new specimens of serum. No explanation for these results has so far been found. It is proposed in 1936 to check results by means of frequent exchanges of sera and antigens with other laboratories.

(c) *Agglutination Tests.*—Four hundred and fifty-three sera were examined. Two hundred and eighteen of these were sent for the Widal test, and two hundred and thirty-five were specimens primarily intended for Wassermann tests, which were examined in addition for Brucella agglutinins. All the latter were negative. Of the remaining two hundred and eighteen the results were as under :—

	Europeans	Asiatics	Africans	Total
Bact. typhosum	25	5	32	62
Bact. paratyphosum A	—	—	2	2
Bact. typhosum and *Bact. para. A*	2	—	1	3
Bact. para. A and *Bact. para. B*	1	—	—	1
Typhoid—paratyphoid group	15	—	7	22
Br. abortus	1	—	4	5
Br. abortus and *Br. melitensis*	—	—	4	4
Total positive	44	5	50	99
Negative	26	14	79	119
Total	70	19	129	218

The ninety positive enteric group agglutinations were received from the following areas: Dar es Salaam 24, Mbeya 23, Tanga 9, Morogoro 7, Kigoma 5, Arusha 5, Songea 4, Tukuyu 4, Bukoba 2, Kiomboi 2, Tabora 2, Moshi 1, Mwanza 1, Musoma 1—Total 90.

The nine Brucella infections had the following distribution :—

Dar es Salaam ...	4	(Titres 1/125, 1/5,000, 1/5,000, 1/20,000.)
Morogoro	1	(Titre 1/25.)
Tukuyu	1	(,, 1/250.)
Kilosa	1	(,, 1/10,000.)
Arusha	1	(,, 1/1,000.)
Magila	1	(,, 1/50.)

Three of the specimens from Dar es Salaam were from the same patient. These sera and the fourth from Dar es Salaam were from cases of laboratory infection.

The increasing number of positive agglutination results for the Brucella group is of great interest. As a result of Dr Wilson's work, which is referred to in Part IV of this report, medical practitioners were circulated regarding Brucellosis and asked to send specimens of serum for test. As a result, over five hundred specimens have now been examined with over thirty positive results. It is evident that Brucellosis in some form is present in the Territory and the closest watch for its occurrence is being kept.

Several specimens of serum from cattle were received from the Veterinary Officer and are discussed under section 5 (j).

(d) *Blood Grouping.*—Fifty-four samples of blood were typed. Thirteen of these were matched direct with recipients. The remaining forty-one showed the following distribution. Moss's classification was used throughout :—

	British	Greek	Indian	Total
Group I	1	—	2	3
,, II	17	1	2	20
,, III	6	1	—	7
,, IV	8	3	—	11
Total ...	32	5	4	41

It is hoped to build up a transfusion service when a sufficient number of individuals of each race has been grouped.

(3) OTHER BLOOD EXAMINATIONS.

(a) *Blood Culture.*—Twelve blood cultures were carried out with the following results: Europeans 6 (one *Bact. paratyphosum A* and one *Br. abortus*); Asiatics 3 (all negative); Africans 3 (all negative).—Total, 12.

The *Br. abortus* culture was from one of the individuals referred to in section (2) (c) above who was suffering from a laboratory infection.

(b) *Total Counts.*—Europeans 72; Asiatics 4; Africans 5.—Total, 81.
(c) *Differential Counts.*—Europeans 86; Asiatics 21; Africans 29.—Total, 136.
(d) *Polynuclear Counts.*—Europeans 13; Asiatics 2; Africans 3.—Total, 18.
(e) *Hæmoglobin Estimations.*—Europeans 59; Asiatics 4; Africans 5.—Total, 68.

There is nothing of note to report under any of these heads. The hæmoglobin content of the Europeans was markedly high in many cases, reaching from 105 to 120 per cent by Gower's, Sahlis's and Klett's methods.

(4) GENERAL EXAMINATIONS.

(a) *Fæces.*—General microscopic examinations of fæces was made in five hundred and ninety-eight cases. Nothing of special note was found.

(b) *Urine.*—Five hundred and nine urines were examined with the following positive results : Glucose 9 ; Albumin 74 ; Pus 37 ; Casts 25 ; Hæmoglobin 2.—Total pathological, 147.

(5) BACTERIOLOGY.

(a) *Fæces.*—Fifty-three were cultured. In only one case was a pathogenic micro-organism isolated, and this was *Alkaligenes fæcalis.*

(b) *Urine.*—One hundred and four specimens were cultured or examined by direct microscopy, with the following results :—

	Europeans	Asiatics	Africans	Total
Colon group bacteria	15	21	12	48
Bact. pyocyaneum	—	2	—	2
Pyogenic cocci	18	6	5	29
N. gonorrhœæ	—	—	2	2
M. tuberculosis	—	—	—	—
Total positive	33	29	19	81
Total negative	12	6	5	23
Total urine	45	35	24	104

(c) *Sputum.*—Eight hundred and seventy-three specimens were examined :—

	Europeans	Asiatics	Africans	Total
M. tuberculosis	2	31	375	408
Negative	24	248	193	465
Total	26	279	568	873

(d) *Nasal and Skin Smears.*—Four hundred and twenty-eight specimens, all Africans : *M. lepræ* 241 ; Negative 187.—Total, 428.

(e) *Throat Swabs.*—Fourteen were examined. Nothing noteworthy was found.

(f) *Urethral and Vaginal Smears.*—Ninety-five specimens :—

	Europeans	Asiatics	Africans	Total
N. gonorrhœæ	8	4	18	30
Negative	10	13	42	65
Total	18	17	60	95

(g) *Pus from Abscesses, etc.*—Forty-four specimens :—

	Europeans	Asiatics	Africans	Total
Pyogenic cocci	5	7	16	28
Pneumococci	—	—	2	2
Fusiform bacilli	—	—	1	1
B. anthracis	—	1	1	2
Bact. pyocyaneum	2	—	—	2
Colon group bacilli	2	1	1	4
Diphtheroids	—	—	1	1
Positive	9	9	22	40
Negative	1	1	2	4
Total	10	10	24	44

(h) *Body Fluids.*—Twenty-one specimens :—

	Europeans	Asiatics	Africans	Total
Cerebro-spinal fluid	—	—	3	3
Pleural	—	1	10	11
Synovial	2	—	4	6
Pericardial	—	—	1	1
Peritoneal	—	—	—	—
Total	2	1	18	21

Meningococci were found in one specimen of cerebro-spinal fluid, from an African.

(i) *Vaccines.*—Thirty-one autogenous vaccines were prepared : Staphylococci 24 ; *Bact. coli* 3 ; *Bact. pyocyaneum* 1 ; *A. fæcalis* 1 ; Mixed catarrhal 2.—Total, 31.

The following quantities of stock vaccines and sera were issued :—

Anti-dysenteric serum (25c.c.)	5	phials
Anti-meningococcal serum (25c.c.)	42	,,
Anti-streptococcal serum (25c.c.)	45	,,
Diphtheria antitoxin (4,000 units)	17	,,
Diphtheria antitoxin (8,000 units)	10	,,
Plague vaccine (25c.c.)	14	bottles
Gonococcal vaccine (1c.c.)	11	phials
T.A.B. vaccine (25c.c.)	41	bottles
T.A.B. vaccine	34	sets
Tetanus antitoxin (1,500 units)	70	phials
Tetanus antitoxin (8,000 units)	53	,,
Anti-venene serum (10c.c.)	10	,,
Hay Fever test outfits	1	set

(j) *Veterinary.*—Seventy-three specimens were examined for the Veterinary Department.

Eight specimens of fæces from dogs were examined. *Ankylostoma* adults were obtained from six of these, sixteen worms in all being obtained. Three of these appeared to be *A. duodenale* and the remainder *A. braziliensis.* The specimens were sent to Professor Leiper for identification.

A turkey with multiple skin tumours, a diphtheritic membrane on the throat, and an ulcer in the intestine was examined post-mortem. The tumours closely resembled the benign epithelial tumours of the human subject.

Seven glands from cattle and goats were examined for *M. tuberculosis* with negative results.

Two blood films from dogs were examined. One contained *T. congolense.*

A specimen of multiple sarcomata in the genitals of a dog was examined and retained for the museum.

Ankylostome ova were identified in the intestine of a dead cat.

Forty-five specimens of serum from cattle were examined for the presence of *Br. abortus* agglutinins. Twenty of these produced a positive result in 1/25 or over, but rarely exceeded a titre of 1/50.

(6) PUBLIC HEALTH EXAMINATIONS.

(a) *Water Examinations.*—Bacteriological examinations of the public water supply was made weekly, together with controls from the laboratory taps. One hundred and two samples were examined. It was noted that *Bact. pyocyaneum* tended to appear in as low as 10c.c. of water fairly frequently. The possible source and significance of this organism was investigated, but it was decided that in view of its ubiquity in Dar es Salaam it could not be said to have any special significance.

Sixty-six samples from shallow wells were examined and showed a high degree of bacterial contamination.

The detailed results of water examinations are shown in Appendix I.

(b) *Foodstuffs.*—Ten samples were examined bacteriologically. Nothing of importance was discovered.

(c) *Rats.*—Two thousand nine hundred and ninety-eight rats were examined for the presence of *P. pestis.* All were negative.

(d) *Snails.*—Fourteen snails were examined for the presence of cercariæ with negative results.

(e) *Entomological.*—Fifty-four specimens were received for identification from Iringa. These included 5 *Culicoides*, 1 *Megarhinus* sp., 4 *A. gambiæ*, 1 *A. squamosus*, 1 *A. rhodesiensis*, 21 ticks for infectivity (all negative), 20 flies (*Simulium*) and 1 cricket (*Gryllida*).

(f) *Katathermometer Readings.*—Daily readings were taken at 9 a.m. on two hundred and twenty-nine days. The findings are recorded in Appendix II. A special investigation made in the gaol is described in Part IV.

(g) *Specimens of Fæces from the Beaches.*—Three hundred and thirty-one were examined. The results are discussed under Special Investigations (Part IV).

(7) MEDICO-LEGAL EXAMINATIONS.—Forty-three exhibits.

For blood stains	17	(8 positive)
,, spermatozoa	11	(1 positive)
,, gonococci	5	(1 positive)
Sets of bones for identification	5	
Hair	3	
Viscera, other than for poisons	2	
Total ...	43	

(8) PATHOLOGICAL EXAMINATIONS.

(a) *Autopsies.*—Twenty-one were performed. The causes of death were as follows :—

Race	Sex	Cause of Death
British ...	Male ...	Septic meningitis.
,, ...	,, ...	Drowning.
African ...	,, ...	Myocarditis.
,, ...	Female ...	Broncho-pneumonia.
,, ...	Male ...	Toxæmia.
,, ...	,, ...	Fractured skull.
,, ...	,, ...	Multiple injuries.
Indian ...	,, ...	Gunshot wound, chest.
African ...	,, ...	Pulmonary tuberculosis.
,, ...	Female ...	Cause unknown.
,, ...	Male ...	Ruptured aortic aneurysm.
,, ...	Female ...	Multiple incised wounds.
,, ...	Male ...	Fractured skull.
Indian ...	Female ...	Multiple injuries.

Race	Sex	Cause of Death
African	Female	Multiple incised wounds.
,,	,,	Poisoning by opium.
,,	Male	Hanging.
,,	,,	Asphyxia.
,,	,,	Fractured pelvis.
,,	Female	Stab wound, chest.

(b) *Morbid Histology.*—Two hundred pieces of tissues were received from one hundred and thirty-nine individuals :—

1. Neoplasms :	
Benign	16
Malignant	38
Others	4
2. Local conditions	59
3. General conditions	22
Total	139

The details are shown below :—

(1) NEOPLASMS.

(a) *Benign.*

Type	Position	Race	Number
Lipoma	Not stated	Asiatic	1
	,,	European	1
Fibro-lipoma	Abdominal wall	African	1
Papilloma	Upper eyelid	,,	1
	Glans penis	,,	1
	Cervix uteri	European	1
Papillary cystadenoma	Ovary	African	1
Myoma	Uterus	,,	1
	,,	European	1
Myoadenoma	,,	,,	1
Fibroma	Leg	African	1
	Knee	,,	1
	Foot	,,	1
	Uterus	European	1
Non-pigmented mole	Face	,,	1
Sebaceous cyst	Head	African	1
		Total	16

(b) *Malignant.*

CARCINOMA.

Squamous	Tongue	African	1
	Ulcer, leg	,,	3
	Face	,,	1
	,,	European	1
	Penis	African	2
	Thumb	,,	1
	Neck	Asiatic	1
	Not stated	African	3

Type	Position	Race	Number
Adenocarcinoma	Not stated	African	1
	Parotid gland	,,	1
	Uterine scrapings	,,	1
	Groin gland	,,	1
	Liver	,,	3
	Inguinal gland	European	1
	Omentum	African	1
		Total Carcinoma	22

SARCOMA.

Melanoma	Not stated	African	1
	Neck	,,	1
	Leg	,,	1
	Eyeball	,,	1
Fibrosarcoma	Heel	,,	1
	Not stated	,,	2
Round celled	Penis	Dog	1
	Kidney	African	1
	Not stated	,,	1
Polymorphic	Parotid gland	,,	1
	Eye	,,	2
	Jaw	,,	1
Osteosarcoma	Femur	,,	1
Giant celled myeloma	Thumb	European	1
		Total	16

Other Neoplasms.

Mixed parotid	Neck	African	3
Adamantinoma	Jaw	,,	1
		Total	4

Total Neoplasms :

Benign	16
Carcinoma	22
Sarcoma	16
Others	4
Total	58

(2) LOCAL CONDITIONS.

Type	Race	Number
Normal placenta	European	1
,, ,,	African	4
Tubercular testis	European	1
,, ,,	African	1
,, pneumonia	Bull from Vet. Dept.	1
,, glands	African	1
Syphilitic testis	,,	1
Appendicitis	European	5
,,	Asiatic	4
,,	African	1
Orchitis	,,	3
Epididymitis	European	1

Type	Race	Number
Funiculitis	African	1
Elephantoid tissue	,,	2
Cirrhosis of liver	,,	2
Nephritis	,,	2
Lobar pneumonia	,,	1
Simple inflammation	European	1
,, ,,	African	7
Abortion	European	1
,,	African	1
Calcified gland	European	1
Blood clot	African	2
Normal	,,	9
Appendicitis due to eggs of *S. hæmatobium*	,,	1
Miscellaneous from Veterinary Department	...	4
	Total	59

(3) GENERAL CONDITIONS.

Yaws	African	1
Toxæmia	,,	5
Lymphadenoma	,,	2
Tissues from monkeys infected with Brucella	...	14
	Total	22

Summary.

Neoplasms	58
Local conditions	59
General conditions	22
Total	139

SUMMARY OF EXAMINATIONS.

Parasitological	3,511
Serological	2,000
Other blood examinations	315
General examinations	1,107
Bacteriological	1,736
Public Health	3,908
Medico-legal	43
Pathological	221
Total	12,841

(b).—CLINICAL LABORATORY, SEWA HADJI HOSPITAL, DAR ES SALAAM.

Dr Wilson took charge of the laboratory in June and was assisted by an African laboratory assistant and one microscopist.

Six thousand eight hundred and ninety specimens were dealt with in the first seven months, which is a very gratifying result. Great benefits are expected to be derived from this new organization. Not only do the medical officers in the Sewa Hadji hospital receive their reports more rapidly, but they have the use of the laboratory and the services of a clinical pathologist for consultation. The opportunities for the pathologist of obtaining material from actual cases, together with that of examining the patients in person, are greatly increased.

The following specimens were dealt with :—

(1) PARASITOLOGY.

(a) *Blood films.*

Malaria parasites	751
Sp. duttoni	14
Microfilariæ	77
Total positive	842
Total negative	1,993
Total examined ...	2,835

(b) *Fæces.*

Ova of *Ankylostoma*	659
,, *Strongyloides*	33
,, *Ascaris*	12
,, *Trichuris*	15
,, *Tænia*	15
,, *Oxyuris*	1
,, *S. mansoni*	1
,, Flagellates	39
Positive fæces	775
Negative ,, ...	673
Total ...	1,448

(c) *Urine.*

Ova of *S. hæmatobium*	100

(2) SEROLOGY.

All sera were examined at the main laboratory.

(3) OTHER BLOOD EXAMINATIONS.

Total counts	5
Differential counts	39
Estimation of hæmoglobin	174

The hæmoglobin was chiefly estimated in cases of hookworm disease with a view to ascertaining the effects of treatment with large doses of iron and various combinations of anthelmintics.

(4) GENERAL EXAMINATIONS.

Urine.—Four hundred and six specimens of urine were examined. Glucose was found in thirty-nine specimens and albumen in one hundred and fifty. Pus and red blood cells were found in eighty-seven specimens and casts in ten.

(5) BACTERIOLOGICAL.

(a) *Fæces.*—All cultures were done at the main laboratory.

(b) *Urine.*—*N. gonorrhœæ* was found in one specimen.

(c) *Sputum.*—Three hundred and eighty-four sputa were examined. *M. tuberculosis* was found in thirty-seven specimens and three hundred and forty-seven were negative.

(d) *Nasal and Skin Smears for* M. lepræ.—Eighteen were examined and two were positive.

(e) *Urethral and Vaginal Smears.*—Forty were examined. *Neisseria gonorrhœæ* were present in fifteen and twenty-five were negative.

(6) ZOOLOGICAL.

With a view to ascertaining the type of hookworm infestation most prevalent among the patients in the Sewa Hadji hospital a number of stools were examined and the adult worms identified with the following results :—

Total adults identified	1,440	
Male *Ankylostoma duodenale*	140	=25·2%
Female *Ankylostoma duodenale*	222	
Male *Necator americanus*	346	=74·8%
Female *Necator americanus*	732	

Percentage of male and female *Ankylostoma duodenale* :—

Male	38·6%
Female	61·4%

Percentage of male and female *Necator americanus* :—

Male	32%
Female	68%

SUMMARY OF EXAMINATIONS.

Parasitological	4,383
Bacteriological	443
Zoological	1,440
General	624
Total ...	6,890

(c).—LABORATORY, MPWAPWA.

(1) PARASITOLOGY.

(a) *Blood films.*

Malaria parasites	56
Sp. duttoni	20
Total positive	76
Total negative	93
Total ...	169

(b) *Fæces.*

Ova of *Ankylostoma*	3
,, *Tænia*	4
Larvæ of *Strongyloides*	2
Negative	6
Total ...	15

(c) *Urine.*

Ova of *S. hæmatobium*	3

(2) SEROLOGY.

(a) *Kahn Test.*

Positive	12
Doubtful	1
Negative	15
Total ...	28

(b) *Agglutination Tests.*—Six sera were put up against the typhoid group. All were negative.

One hundred and seven sera were put up against the Brucella group of organisms and twenty-one agglutinated in titres ranging from 1/25 to 1/5,000. These results form the subject of a special paper.

(3) OTHER BLOOD EXAMINATIONS.

(a) *Blood Culture.*—Twenty-two were undertaken in six suspected cases of human Brucellosis. Four cultures were positive but one could not be typed as it was lost in sub-culture. The typing was carried out at the Veterinary Research Laboratory, Nairobi. Of the three typed, one proved to be a typical *Br. abortus* while the other two reacted as typical *Br. melitensis.* These results are also recorded in another paper.

(b) Total counts, one.

(c) Differential counts, twelve.

(4) OTHER GENERAL EXAMINATIONS.

Urine.—Sixteen specimens were examined. Glucose was found in two and albumen in one.

(5) BACTERIOLOGICAL EXAMINATIONS.

(a) *Urine.*—Three urines were cultured in an endeavour to isolate Brucella organisms. They were all negative.

(b) *Sputum.*—Six sputa were examined for *M. tuberculosis.* All were negative.

(c) *Nasal and Skin Smears.*—*M. lepræ* was isolated from one nasal smear.

(d) *Urethral and Vaginal Smears for N. gonorrhœæ.*—Four were examined. All were negative.

(e) One autogenous vaccine was prepared from a growth of *Br. melitensis.*

(f) *Miscellaneous.*—A study of the pathogenicity of local strains of *Br. melitensis* and *Br. abortus* was made, using a local species of monkey. This is the subject of a special paper. (Ref. 6, page 5.) In collaboration with the Veterinary pathologist, attempts are being made to change the characters of the *melitensis* strain by various combinations of monkey-cow passage.

SUMMARY OF EXAMINATIONS.

Pathological	187
Serological	141
Other blood examinations	35
General examinations	16
Bacteriological	15
Total ...	394

PART II.—LYMPH PRODUCTION, MPWAPWA LABORATORY.

LYMPH MANUFACTURE.

Staff.—D. E. Wilson, Medical Officer, 1st January, to 26th April, 1935; John Robert, African dispenser, 1st January to 28th May, 1935. In addition there were three African laboratory attendants and two labourers. The shortage of European staff made it once again necessary to close the Institute temporarily. Manufacture of lymph ceased at the end of May and all stocks were transferred to Dar es Salaam for testing and issue. It is hoped to open the Institute early in 1936.

Financial.—The total cost of administration and upkeep for the period 1st January to 31st May, 1935, amounted to approximately £500. The value of lymph sold to other Governments was £80. The value of lymph manufactured during the year amounted to £3,329, calculating this amount from the rate at which lymph is sold to other Governments.

Manufacture.—Fifty-seven calves passed through the Institute during the year and lymph was collected from fifty-six of these. No calf died in the Institute.

The following table gives details of the yield of lymph for the past seven years :—

Year	Calves used	Total pulp in grammes	Average yield per calf	Minimum yield per calf	Maximum yield per calf
1929	131	2,984·5	22·8	2·8	66·6
1930	243	4,624·2	19·0	—	—
1931	162	3,347·0	20·6	5·5	44·0
1932	83	2,612·8	31·5	11·8	75·0
1933	70	2,210·7	30·7	8·0	56·0
1934	115	3,198·1	27·8	2·9	65·8
1935	56	1,657·0	29·6	12·5	56·4

During the year 332,900 doses of undiluted lymph were manufactured. This represents a total of 665,800 doses suitable for issue, since the lymph before issue is always diluted with an equal volume of glycerine-water mixture. The same technique of manufacture was used as in 1934.

Distribution of Lymph.—The number of doses issued was higher than in 1934. This rise was due to the occurrence of small outbreaks of smallpox in the Southern province. The following figures show the annual issue since 1928 :—

1928	388,698	1932	596,250
1929	389,500	1933	817,762
1930	1,613,350	1934	833,860
1931	1,003,800	1935	962,650*

*Includes 16,000 doses to Zanzibar.

Results.—A table is appended below showing the issues in each district of the Territory, the number of vaccinations performed and the number of "takes." No distinction is made between primary and other vaccinations. The results cannot be taken as a true measure of the "taking" power of our strain of vaccine lymph. When performed under adequate supervision the number of successful vaccinations is always over ninety per cent :—

SUMMARY OF RESULTS.

Doses issued	946,650
Vaccinations performed	333,245
Number reinspected	241,360
Successful	162,749
Unsuccessful	73,884

The difference in the total of the successful plus unsuccessful results and the number reinspected is due to inaccuracies in the monthly returns.

From certain stations which received a total of 393,250 doses no returns were sent. It would appear from the above figures that approximately one-third of the lymph issued is never used.

Vaccine Lymph Return.

PROVINCES	Population	Density of population	District or Station	Smallpox		Doses of Lymph Issued		Total Number vaccinated	Number re-inspected	Successful	Un-successful
				Cases	Deaths	District	Total for Province				
CENTRAL ...	579,712	15·5	Dodoma ...	—	—	14,000	49,900	13,852	11,742	8,495	3,250
			Singida ...	—	—	6,000		5,340	2,516	1,575	941
			Kondoa ...	—	—	4,800		2,400	1,901	1,231	670
			Mkalama ...	—	—	7,800		6,603	4,532	2,472	2,132
			Manyoni ...	—	—	6,000		*—	—	—	—
			Mpwapwa ...	—	—	11,300		5,412	1,954	1,260	694
TANGA ...	355,914	22·1	Tanga ...	—	—	†—		9,304	4,795	2,781	1,977
			Pangani ...	—	—	†—		517	425	253	172
			Korogwe ...	—	—	†—		378	176	128	46
			Lushoto ...	—	—	†—		196	98	49	49
NORTHERN ...	344,198	10·8	Moshi ...	—	—	25,000	26,200	1,429	1,328	782	546
			Mbulu ...	—	—	†—		900	900	300	600
			Arusha ...	—	—	†—		*—	—	—	—
			Kibaya ...	—	—	1,200		*—	—	—	—
EASTERN ...	619,191	14·6	Dar es Salaam ...	1	—	19,800	85,200	*—	—	—	—
			Bagamoyo ...	—	—	3,500		3,232	2,456	1,609	847
			Morogoro ...	—	—	24,000		18,811	10,467	5,971	4,402
			Kilosa ...	—	—	17,600		*—	—	—	—
			Mahenge ...	—	—	10,800		7,798	7,798	5,256	1,022
			Kiberege ...	—	—	3,200		2,589	1,215	1,052	163
			Mafia ...	—	—	600		714	639	401	238
			Utete ...	—	—	1,300		1,000	630	496	134
			Ifakara	—	—	2,400		1,400	1,358	1,212	146
			Soga ...	—	—	900		*—	—	—	—
			Ruvu	—	—	1,100		*—	—	—	—
LINDI ...	543,413	9·3	Lindi ...	39	—	107,000		*—	—	—	—
			Kilwa ...	3	1	53,800		20,209	17,025	15,340	2,697
			Mikindani ...	10	—	30,000		1,000	1,000	652	348
			Masasi ...	386	2	165,000		*—	—	—	—
			Tunduru ...	—	—	13,400		8,420	8,420	4,497	3,943
			Songea	—	—	5,400		4,823	3,285	1,845	1,450

PROVINCES	Population	Density of population	District or Station	Smallpox		Doses of Lymph Issued		Total Number vaccinated	Number re-inspected	Successful	Un-successful
				Cases	Deaths	District	Total for Province				
Iringa ...	491,911	12·9	Iringa ...	1	—	10,400	158,300	8,796	4,789	3,178	1,541
			Njombe ...	—	—	48,000		*—	—	—	—
			Mbeya ...	59	1	34,000		23,800	17,100	7,501	9,599
			Tukuyu ...	—	—	60,000		42,227	30,969	17,922	12,921
			Chunya ...	—	—	2,900		*—	—	—	—
			Malangali ...	—	—	2,400		1,398	1,060	642	418
			Mbozi ...	—	—	600		*—	—	—	—
Lake ...	1,246,073	31·9	Bukoba ...	—	—	18,000	148,450	5,832	2,488	1,743	745
			Biharamulo ...	—	—	6,000		4,095	3,896	3,142	748
			Mwanza ...	—	—	83,000		56,144	47,946	36,676	8,270
			Musoma ...	—	—	28,600		5,792	3,469	2,633	836
			Shanwa ...	—	—	8,000		22,113	19,235	14,455	4,780
			Ikoma ...	—	—	1,200		*—	—	—	—
			Shinyanga ...	—	—	3,600		3,640	3,156	2,045	1,141
			Sanza ...	—	—	50		*—	—	—	—
Western ...	842,228	8·2	Tabora ...	4	—	23,000	104,000	20,209	11,665	9,128	2,436
			Nzega ...	—	—	12,000		*—	—	—	—
			Kahama ...	—	—	2,600		2,089	1,355	893	452
			Kigoma ...	—	—	21,100		8,690	120	49	71
			Ujiji ...	—	—	—		1,699	1,168	472	689
			Kasulu ...	—	—	33,500		4,691	3,722	2,204	1,017
			Makere ...	—	—	2,000		*—	—	—	—
			Kibondo ...	—	—	5,000		*—	—	—	—
			Ufipa ...	—	—	4,800		5,703	4,562	2,809	1,753
Total ...	5,022,640	13·7		503	4	946,650					
			Issued to Zanzibar ...			16,000					
						962,650					

*Returns not received. †Issued from Moshi.

Part III.—Chemical Section.

During the year one thousand four hundred and seventy-five samples were examined which shows a further increase of work (1934=one thousand and sixty-six). These samples can be classified thus :—

Milk	694
Condensed milk	60
Maize meal	32
Clarified butter	51
Other foodstuffs	7
Pombe (native beer)	69
Other alcoholic liquids	15
Water	46
Poison and viscera	44
Drugs	2
Local native medicines	28
Bloodstained articles	18
Urine (biochemical)	305
Blood ,, ...	56
Calculi ,, ...	1
Fæces ,, ...	1
Copra	4
Beeswax	6
Miscellaneous	36
Total ...	1,475

and were received from the following departments : Administration, Customs, Medical, Police, Posts and Telegraphs, Public Works, Railways, Veterinary, and Lands and Mines. Advice was also tendered to the Legal Department.

As previously recorded most willing and useful assistance has been received from the staff of the East African Agricultural Research Station, Amani.

FOODSTUFFS.

The majority of the milks were analysed for the Veterinary Department. In this connection the Veterinary Chemist and the Analytical Chemist have examined large numbers of milk and ghee samples with a view to preparing the ground for effective control and legislation. The results are under publication in the *Analyst.*

Of the 266 samples of milk collected in Dar es Salaam 15 were below the prescribed standard. The quality of milk in the outstations was much poorer. Thus, for Tabora 77 samples were examined of which 19 were below the prescribed standard.

WATER SUPPLIES.

The year has seen a large number of water problems submitted for advice.

In Iringa deposits were observed in the supply and the cause of the trouble was traced to the use of excess aluminous precipitant. Tests were devised suitable for execution by engineers and others on the spot. No further complaints have been made.

In Dodoma a very turbid water forms the supply. This is collected in a natural reservoir and has a very low alkalinity. It is then treated with alum and an excess has to be employed in order to clarify the raw water. The resulting supply was clear and acid. It was passed through iron pipes and when drawn was clear but on oxidation deposited a filthy brown mass. This trouble has been overcome by the use of a small dose of sodium carbonate added shortly after the alum.

In Dar es Salaam evidence has been produced that the supply varies in the different boreholes but further work is required before the significance of this can be understood.

In Arusha the question of the dispossession of natives near the spring supply has arisen and is still under investigation.

Problems in connection with the Bukoba and Mwanza supplies have been submitted but further work is required before definite proposals can be made.

POMBE (LOCAL BEER).

The controlled Dar es Salaam supply had the following composition: Alcohol content (by weight) mean 3·6 per cent (maximum 4·8, minimum 2·4); acidity (grams acetic acid/100mls.) mean 0·93 (maximum 2·24, minimum 0·61) based on sixty-nine samples examined. A few other native beverages including distilled "Moshi" have been examined. The latter contains 8 to 15 per cent by weight of alcohol.

Various further experiments and minutes have been prepared on this subject.

PALM OIL.

A few experiments have been carried out on the vitamin A content of palm and shark oils and ghee. The palm oil is obtained from a number of plantations some of which were planted as an experiment by the Germans. It has been suggested that this oil should be used in preference to ghee in native prison diets and that it might form a cheap and useful medicine for correcting the vitamin A deficiency of natives. Work is being continued on this subject.

BEESWAX.

Six samples of beeswax have been examined and the industry is under study with a view to improving the standard of the exports.

FATAL MEDICO-LEGAL CASES.

A number of medico-legal boxes each fitted with two wide necked screw-top jars, 800c.c. rectified spirit, two forms containing a questionnaire regarding symptoms, etc., and detailed instructions for the collection of botanical specimens have been sent to twenty-three stations. It is believed that they are greatly appreciated by the medical and police authorities.

Exhibits covering twenty-four deaths have been received. Substances found in these exhibits may be classified as follows:—

Deaths of Non-Natives (2).—One, Adalin 4·5 grams (not the immediate cause of death); one, opium.

Deaths of Natives (22).—In four cases the cause of death was apparently due to species of *Euphorbia* and in another case it was due to a mixture of *Euphorbia* and *Combretum* spp.

Of the remaining seventeen cases negative findings were obtained in nine cases. Cantharidin, arsenic and two not fully characterized alkaloids, one of the *Datura* class and one derived from *Courbonia edulis* (see below), accounted for four cases. The four remaining cases were arrow poisons and the poisons on the fatal arrows were classified according to botanical source as follows: *Acocanthera* two; *Strophanthus* one; Undetermined one.

The case of poisoning from Cantharidin was interesting. The symptoms exhibited and the post-mortem findings were typical. The deceased had received a medicinal mixture composed of :—

	Per cent
Root of *Matungambuli* (*Cissus rotundifolia*)	1·4
,, *Ndagowasa* (*Grewia* sp.)	16·6
,, *Mahusi* (*Acacia* sp. ? *campylacantha*)	67·0
,, *Ngubu* (*Sansivicria* sp.)	13·1
Kawishine (*Mylabris præstans*)	1·9
Total ...	100·0

The beetle contained a high percentage of Cantharidin.

Regarding the toxic action and local uses of *Euphorbia* a note is under publication elsewhere. Similarly methods worked out for the examination of arrow poison have been published elsewhere (*Analyst*, 61 (1936), 100-3). The action of *Courbonia* sp. is referred to below.

NATIVE MEDICINES AND POISONS.

An attempt has been made to collect information concerning native medicines and poisons. In this attempt willing assistance has been rendered by the East African Agricultural Research Station, Amani, whose Botanist has identified practically the whole collection. Details have now been collected concerning the use of some eight hundred odd plants. Many of these have been reported individually by several collectors so that the various reports check the one against the other. Already the index has proved invaluable in the investigation of native poisoning. Apart from this local value the index contains much material that would probably well repay chemical and pharmacological investigation. For many years vague reports have been current concerning efficient native poisons and medicines unknown to modern science. For the first time some of these are known.

It is impossible to refer in detail to more than a few plants but one or two are dealt with below as typical of the information obtained :—

Courbonia edulis Gilg. and Ben.—*Ekingwera* (Ki-ikizu).

Courbonia camporum Gilg. and Ben.—*Msopo,* Luwuga (Kisumbwa).

Courbonia edulis is used to relieve pain in the chest. The root is powdered and mixed with water and applied to the chest for about fifteen minutes. When fresh the root after removal of the rind is used to prepare a pleasant sweet drink and supposed "to cleanse the stomach." A cold press was applied to the forearm for one hour but no effect was noticed. The aqueous extract of the root does not reduce Fehling's solution. The alcoholic extract (12·5 per cent) yields an oleaginous residue with a curious smell, practically completely soluble in alcoholic potash. The root gives positive reactions for alkaloids.

Courbonia camporum.—The leaves are stated to be used as an emetic in the treatment of snake bite.

In 1935 a case of supposed poisoning was reported from Moshi of a woman who was treated by a native doctor with a cooked root known as *Sendali* ostensibly for the cure of syphilis. She died and the medical officer making the post-mortem stated that he thought she died as the result of some irritant. A root and botanical specimen was produced by the native doctor and a portion of a root was produced by the relatives of the deceased as being a portion of medicine prescribed. The two roots were histologically identified. The botanical specimen was identified as *C. camporum*. The juice was pressed out from the cooked root supplied by the relatives. 0·5 and 0·3c.c. of this was injected subcutaneously into two mice and caused their death within a few minutes. 0·5c.c. into the lymph sac of a frog also caused its death within a few minutes. The juice was then pressed out from the root of *C. camporum* but four animal experiments with similar dosage to the above were negative. After moistening the cut root and steam cooking for an hour or so the juice then pressed out proved fatal to three frogs (0·5c.c.) and one mouse (0·5c.c.). The root, leaves and stem gave positive reactions for alkaloids after extraction with Prollius's fluid. The Stas-Otto process also gave a small alkaloidal residue from the root. A large proportion of the root was alcohol soluble.

Although species of *Rauwolfia* have been known to contain alkaloids since 1887 it is only in recent years that any full investigation of them has been made. In 1932 the Siddiquis isolated five alkaloids from *Rauwolfia serpentina*, the main group liberated from their salts by ammonia being termed the Ajmaline group (0·36 per cent of the roots) and another group the Serpentine group (0·2 per cent) which is only liberated by strong alkalies.

In the same year Koepfli working in America examined *R. caffra* and isolated Rauwolfine which appears to be more toxic (lethal dose for rats about 35mgm./kg. body weight) than Siddiquis's Ajmaline.

Ajmaline is undergoing a clinical trial and is reported to show promise to be an excellent sedative and also to be useful in the treatment of chronic constipation. The therapeutic dose of Ajmaline is about ·01g. whereas the toxic dose (based on rat experiments) is about 10g. for an adult human.

It is therefore of interest to find that four species of *Rauwolfia* are used by natives.

The roots of *R. mombasiana* Stapf. are stated to be used for the accomplishment of homicide and for killing dogs. The roots and bark of *R. obliquinervis* Stapf. are said to be similarly employed but are not always effective. The roots of both these species have been examined at Dar es Salaam and found to contain alkaloids. *R. rosea* K. Sch. is also stated to be poisonous on occasions. Its fruits act as a strong purge and its roots are a sexual stimulant. (The parts of this plant have not been examined.) *R.* perhaps *inebrians* (further botanical specimen under collection) is used by the Ikizu for the treatment of *tumbo inasokota*. Specimens of the bark appear to contain about 0·6 to 0·7 per cent of alkaloids liberated by ammonia. Little further alkaloidal matter is liberated by strong alkalies. It would certainly be worth examination as a possible source of Ajmaline superior to *R. serpentina* if the new drug finds a useful application in medicine.

Phytolacca dodecandra l' Herit (syn. *P. abyssinica* ? Hoffm.). *Ivesa, Ingorisu, Ingorosoi* (Kichagga), *Hoko* (Kishambala), *Mahoho* (Jaluo).—The root and fruits are stated to be dried in the sun, powdered and put into food especially in *pombe*. The action produced is an accelerated pulse, a condition like drunkenness and then death (Usambara).

Another report (Musoma) states that the root and leaves are added to *pombe* to accomplish homicide. It is reported to cause swelling of the abdomen and rapid death.

Another report (Chagga) states that the juice is mixed with beer to accomplish homicide. It is also said to be a mechanical abortive and the juice of the leaf is used to stop bleeding especially in veterinary practice.

In 1933 a criminal case was heard at Arusha where a native was said to have been poisoned by a root known as *Kilima Wasindi*. It was stated by a native witness that the plant was poisonous to cattle and by the defence that it was used medicinally. The medical officer stated the symptoms exhibited by the deceased were a cold clammy skin, acute vomiting and purging with blood in the fæces. The plant was identified as above.

P. dodecandra is recorded in the Amani Herbarium as toxic to stock. 5g. leaves were ground, saturated with water, pressed and of the filtrate 0·5c.c. were injected into the lymph sac of a frog. It died overnight. 0·5mls. were injected subcutaneously into a mouse. It died in three to four hours. Post-mortem a swollen abdomen was noted.

Ten grams of root were similarly treated and 0·75c.c. injected into a frog. The frog was very ill but eventually recovered. 0·5c.c. into a mouse caused its death in three to four hours. The leaf showed the presence of alkaloids in the Prollius test but the root showed the presence of only slight traces.

LITERATURE : *Phytolacca abyssinica* Hoffm. is used in Abyssinia against tapeworm but it is poisonous. According to Lewin it contains a saponin and alkaloid. It acts on the heart muscle and causes contraction of the vessels with raised blood pressure. Two females who partook of this plant were said to show vomiting and bloody diarrhœa, stupor, quick irregular pulse, difficulty in breathing and cold perspiration. The symptoms disappeared after some hours.

Kashimura (*Pharm. Journ.* (1891), 1096, 1170) isolated from *P. acinosa* a substance $C_{24}H_{38}O_8$, phytolaccotoxin, which was said to be similar to picrotoxin and circutoxin. The presence of alkaloids in other species has been reported and denied. According to Lewin *Ph. dodecandra* L. (syn. *P. americana* L.) is a drastic poison. A child who ate a handful of the berries showed symptoms of nausea in one hour, fulness in the stomach, vomiting, thirst, weakness, bloody diarrhœa, coldness and cyanosis of the skin, small irregular pulse and swelling of mucous membrane of the mouth. Recovery may occur after twenty-four hours. Treatment stated to hasten the recovery consists of ice, colloidal medicaments, such as gum arabic, and restoratives. Of three children who were poisoned with this plant two died.

The ripe berries were not found toxic to chickens in South Africa (Vet. Dept. Expts.).

According to Jenkins (*Journ. Amer. Pharm. Soc.*, *18* (1929) (573), the root of *P. americana* L. yields 1·75 per cent oily mass soluble petroleum ether; 0·16 per cent unknown alkaloid; 0·8 per cent volatile oil and 0·21 per cent potassium nitrate.

It is impossible to name each collector who has kindly sent in information but the collection and work of Herr Koritschoner deserves high praise. Valuable information has also been obtained by Mr P. R. O. Bally and Dr Middleton.

CO-OPERATION.

Through the courtesy of the Director of Veterinary Services his chemist is undertaking any urgent duties during the writer's absence.

During the absence of the Government Chemist, Zanzibar, the writer was gazetted as Acting Government Chemist but material from one fatal medico-legal case only was submitted for examination.

MISCELLANEOUS.

Various miscellaneous problems have been dealt with during the year and a course of lectures on elementary chemistry and physics was delivered to student-dispensers. The usual collection of blood stains, suspected *banghi*, opium, etc., were submitted but do not call for special comment. The biochemical work has been of a clinical nature but has been rather more varied than in previous years. Various corrosion problems and queries concerning book pests have also been answered.

PART IV.—SPECIAL INVESTIGATIONS.

NATIVE MEDICINES AND POISONS.

A full account of the investigations made into this subject will be found in Part III, as part of the report of the Analytical Chemist.

BRUCELLOSIS.

A most useful investigation was conducted by Dr. Wilson during the year and is still continuing. Having previously found the presence of eleven positive agglutinations with the Brucella group out of two hundred and seventy sera examined, he continued the work together with clinical observations in 1935. It became evident that a definite syndrome, for which organisms of the Brucella group were responsible, was present in different parts of the Territory. Medical officers were accordingly circularized and invited to send specimens of serum from all patients suffering from unresolved fevers of more than ten days duration. As a result, positive agglutinations were obtained from seven different stations throughout the Territory. The results have been published elsewhere, but it is of interest to note that thirty of three hundred and twenty-five sera examined during the year gave positive results with the Brucella group varying in titre from 1/25 to 1/5,000. Blood cultures were also performed, and both *Br. abortus* and *Br. melitensis* isolated at various times.

The syndrome already referred to is very striking, including some exceedingly constant symptoms, of which headache (just preceding an afternoon fastigium), weakness, insensible pyrexia, and joint pains were most characteristic. Leucopenia with a relative lymphocytosis of from forty to fifty per cent was very commonly found.

An interesting feature of the investigation was confirmation of the experience of many European workers that incubation of the agglutination tests at 37°C. rather than at 56°C. facilitated the development of Brucella agglutinins and increased the number of positive results.

Blood culture on liver agar proved successful in the isolation of the organisms. It was characteristic that the *abortus* strains grew readily without increased CO_2 tension, thus approaching to the Rhodesian type.

A further feature of the investigation was the recognition of Brucella agglutinins in twenty out of forty-five of the local cattle. If a titre of 1/25 be accepted as specific in cattle, then it must be said that over forty per cent were positive.* The conditions existing in goats are to be made the subject of a further study.

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*Since writing the above note, the writer has been informed by the Acting Senior Veterinary Research Officer that nothing less than complete agglutination at 1/50 may be accepted as diagnostic in cattle.

It is evident that Brucellosis causing a clinical variety of undulant fever and due to an organism approaching biologically to the Rhodesian type of bovine *Br. abortus* exists in the Territory, together with an undoubted variety of *Br. melitensis* as well. This is all the more striking since, in previous years, positive agglutination with this group had only been recorded once in this Territory.

PHYSIOLOGICAL SURVEY OF AFRICANS.

This was commenced as part of an economic survey designed primarily to discover: (1) the value of the standards employed in the use of certain tests when applied to the African, e.g. colour index, proportion of leucocytes in health, etc., (2) whether morbid conditions identified by the use of these tests could be found to have a bearing on the disability rate, capacity for work, and other factors.

The survey includes accurate examination of different social groups, both healthy and diseased (school boys, askaris, hospital patients, workers in certain trades, etc.), and study of the results obtained from the use of blood counts, serological tests, and stool, sputum and urine examinations.

Naturally the survey served the important purpose of assisting in the study of the physiology of the African, which has long been neglected. It is a very large undertaking, requiring most detailed care in execution; and the only feature which keeps the study within the bounds of practicability is the fact that each individual examined represents a completed piece of work. The survey can thus be postponed and recommenced according to the amount of time at the worker's disposal.

The survey was planned early in 1935, and some of the preliminary investigations carried out. The results are too few to justify any comments at this stage, but it is hoped that some material results will be available in 1936.

ANKYLOSTOMIASIS.

This investigation was divided into three parts:—

(a) *Zoological*—to identify the type of adult worms infesting man and domestic animals.

(b) *Clinical*—to estimate the relation between infestation and infection rates, the relation of the latter to the hæmoglobin content of the blood, and the influence of treatment thereon.

These investigations are discussed in Part I (A) (5) (j), in connection with veterinary specimens, and Part I (B) (3) and (6) referring to work carried out at the Clinical Laboratory, Sewa Hadji hospital.

(c) *Epidemiological*—the purpose of this part of the investigation was to study the extent of pollution on the beach by ankylostomes derived from man and animals, together with the behaviour of larvæ in the presence of sea water.

In conjunction with the Medical Officer of Health, Dar es Salaam, a series of specimens collected from various sources was examined with the following results:—

	Number	Ankylostome ova	Ascaris ova	Trichuris ova	Total positive
Specimens from sewer outfalls ...	112	103	3	2	108
Formed stools on beach ...	106	102	1	2	105
Fæces floating on deep water ...	13	12	—	—	12
Fæces from dogs ...	100	36	—	—	36
Total specimens ...	331	253	4	4	261

Thus it will be seen that an exceedingly high proportion of specimens contained ankylostome ova. Experiments are now in progress in which attempts are being made to hatch out larvæ under conditions comparable to those existing on the beach. In collecting specimens, due consideration is given to such factors as tides, rainfall, habitations, etc.

The epidemiological significance of the above findings is striking, but the practical outcome of the investigation will depend ultimately upon the hatching experiments.

KATATHERMOMETER READINGS, DAR ES SALAAM GAOL.

A visit was paid to the Dar es Salaam Gaol at the request of the Director of Medical Services in order to study the cooling power of one of the communal cells, by the use of the katathermometer. A report on the investigation is given below.

(a) *General features.*—The dimensions of the cell are 41 feet by 17½ feet with walls having a height of fourteen feet behind and ten feet in front approximately. The sloping roof is constructed of corrugated iron and meets the top of the walls with little space for ventilation. The walls are two feet thick.

The cell is ventilated by means of ten windows. Six of these, in the front wall, are each approximately two feet by one foot and placed some five feet from the floor. The four back windows are somewhat larger and are about eleven feet from the floor, as far as I could judge. There are two wooden doors, open only in small observation windows, each about four inches square.

The cell is designed to accommodate thirty prisoners. During both of my visits the close atmosphere was very noticeable and entry was followed almost immediately by profuse perspiration.

(b) *Experiments.*—Experiments were designed to compare the temperature and cooling power of the cell with another room under similar conditions of time and weather. For control purposes, readings were taken in a laboratory room where katathermometer observations are made daily. The room in question measures thirteen feet by nine feet by fifteen feet, is lighted by one large window and has a permanently open door subjected to a constant through draught from the main laboratory windows.

(c) *Readings.*—Readings were taken under the following conditions :—

(a) Prison cell at 9 a.m., empty and closed since 5 a.m.
(b) Laboratory room at 8.45 a.m., one occupant, open since 7 a.m.
(c) Prison cell at 5.30 p.m., fully occupied since 4 p.m.
(d) Laboratory room at 5.15 p.m., closed and empty since 4.30 p.m.

(d) *Results* :—

Atmospheric Conditions.

	(a)	(b)	(c)	(d)
	Light cloud. Bright sun. Dry. Calm	As (a)	Heavy cloud. Intermittent sun. Dry. Calm	As (c) except fresh breeze blowing
Wet Kata	4·5	6·5	5·2	7·5
Thermometer C.	33°	28·5°	33°	28·5°

It will be observed that the temperatures were constant on both occasions, but that the katathermometer readings were lower in the morning. The reading in the gaol was particularly low, on both occasions.

For comparative purposes, the following readings taken at 9 a.m. in the laboratory room may prove to be of interest :—

(1) Lowest kata reading since 1931 : 5·1 at 30·5°C. in January 1934.

(2) Lowest kata December reading 1931 : 5·7 at 31°C. in December 1931.

(3) Average kata December reading 1931 : 7·5 at 29°C.

It will thus be noted that even the evening kata figure in the cell is almost as low as the minimum morning figure recorded in Dar es Salaam, is lower than the minimum December figure, and considerably lower than the average December figure.

(e) *Remarks.*—The following description given by Haslam (1931) regarding conditions in Great Britain may be of interest : "A fresh comfortable room has . . . . a wet kata cooling power of 16 to 18. If the room is perceptibly cool the figure will be . . . . about 22, and if warm and stuffy . . . about 15."

Vernon, Bedford and Warner (1926) making observations in factories recommended that for factories in Britain where light industrial work is performed, the cooling power should vary from dry kata 7·0 in mid-winter to dry kata 6·0 in mid-summer. This would correspond to wet kata figures of about 20 and 18 respectively.

The results obtained in the Dar es Salaam prison would therefore seem to indicate that in the cell examined, the ventilation is extremely inadequate, both as regards air temperature and the cooling power of the atmosphere.

H. J. O'D. Burke-Gaffney,
Senior Pathologist

February 1936.

APPENDIX I.

Weekly Water Examinations, Dar es Salaam. Bacteriological Findings.

DATE	Public supply				Laboratory tap			
	25 c-c.	10 c.c.	1 c.c.	0·1 c.c.	25 c.c.	10 c.c.	1 c.c.	0·1 c.c.
7th January	PY	—	—	—	—	—	—	—
11th ,, ...	—	PY	—	—	—	—	—	—
12th ,, ...	PY	—	—	—	PY	—	—	—
21st ,, ...	—	INT	—	—	—	—	—	—
26th ,, ...	AER	—	—	—	—	—	—	—
2nd February	—	—	—	—	—	—	—	—
9th ,, ...	AER	—	—	—	—	—	—	—
20th ,, ...	—	—	—	—	—	—	—	—
28th ,, ...	PY	—	—	—	—	—	—	—
11th March	PY	—	—	—	PY	—	—	—
16th ,, ...	—	—	—	—	—	—	—	—
20th ,, ...	—	—	—	—	—	—	—	—
30th ,, ...	INT	—	—	—	—	—	—	—
8th April	PY	—	—	—	PY	—	—	—
15th ,, ...	—	AER	—	—	—	—	—	—
23rd ,, ...	—	PY	—	—	PY	—	—	—
1st May	—	PY	—	—	—	—	—	—
7th ,, ...	—	PY	—	—	—	—	—	—
13th ,, ...	—	PY	—	—	—	—	—	—
20th ,, ...	—	PY	—	—	—	—	—	—
25th ,, ...	—	PY	—	—	—	PY	—	—
1st June	AER	—	—	—	PY	—	—	—
10th ,, ...	PY	—	—	—	—	—	—	—
13th ,, ...	—	—	—	—	—	—	—	—
24th ,, ...	PY	—	—	—	—	—	—	—
28th ,, ...	—	PY	—	—	PY	—	—	—
1st July	—	—	—	—	—	—	—	—
4th ,, ...	—	—	—	—	—	—	—	—
15th ,, ...	PY	—	—	—	—	—	—	—
22nd ,, ...	—	INT	—	—	—	—	—	—
27th ,, ...	PY	—	—	—	PY	—	—	—
6th August	AER	—	—	—	AER	—	—	—
17th ,, ...	AER	—	—	—	—	—	—	—
20th ,, ...	AER	—	—	—	—	—	—	—
23rd ,, ...	PY	—	—	—	PY	—	—	—
3rd September	AER	—	—	—	—	—	—	—
7th ,, ...	AER	—	—	—	—	PY	—	—
14th ,, ...	AER	—	—	—	—	—	—	—
20th ,, ...	—	—	—	—	—	—	—	—
28th ,, ...	PY	—	—	—	PY	—	—	—
21st October	PY	—	—	—	—	—	—	—
30th ,, ...	PY	—	—	—	PY	—	—	—
4th November ...	—	—	—	—	—	—	—	—
7th ,, ...	—	PY	—	—	PY	—	—	—
19th ,, ...	—	AER	—	—	PY	—	—	—
24th ,, ...	AER	—	—	—	—	—	—	—
30th ,, ...	PY	—	—	—	PY	—	—	—
6th December	—	PY	—	—	—	—	—	—
17th ,, ...	—	PY	—	—	—	—	—	—
21st ,, ...	AER	—	—	—	—	—	—	—
30th ,, ...	—	PY	—	—	—	PY	—	—

AER=Organisms of the *Aerobacter* group. PY=Organisms of the *Pyocyaneus* group.
INT=Organisms of the *Intermediate* group.

APPENDIX II.

KATATHERMOMETER READINGS, DAR ES SALAAM. *Taken daily at 9 a.m. in a laboratory room under constant conditions.*

MONTHS	DATE	Highest Kata	Air Temp. C.	DATE	Lowest Kata	Air Temp. C.	Mean Kata	Mean Air Temp. C.
January	17th	9·2	30·0	16th	7·1	30·5	7·9	29·8
February	1st	8·2	30·0	2nd	7·5	29·0	7·9	29·5
March	—	—	—	—	—	—	—	—
April	29th	9·8	25·0	12th	6·4	29·5	8·0	28·5
May	23rd	10·5	24·0	3rd	6·8	27·5	8·6	26·5
June	8th	9·7	24·0	11th	7·4	26·5	8·2	25·3
July	4th	11·4	22·5	29th	8·5	25·7	9·6	23·4
August	9th	11·5	22·5	30th	8·0	26·0	9·4	24·5
September	6th	9·2	25·0	18th	7·5	25·0	8·7	21·0
October	21st	9·8	27·0	30th	7·2	28·0	9·2	25·6
November	22nd	8·1	27·7	7th	6·0	28·7	7·1	28·3
December	13th	8·5	29·0	16th	6·1	31·0	7·1	31·5

The highest Katathermometer readings were from May to August, and bore an inverse ratio to the temperature. The index fell three months earlier than in 1934

APPENDIX III.

SUMMARY OF EXAMINATIONS.

	Main Laboratory	Sewa Hadji Hospital	Mpwapwa	Total
Parasitological	3,511	4,383	187	8,081
Serological	2,000	—	141	2,141
Other blood examinations	315	218	35	568
General	1,107	406	16	1,529
Bacteriological	1,736	443	15	2,194
Public Health	3,908	—	—	3,908
Medico-legal	43	—	—	43
Pathological	221	—	—	221
Zoological	—	1,440	—	1,440
Chemical	1,475	—	—	1,475
Total	14,316	6,890	394	21,600
			Total 1934	15,450
			Increase 1935	6,150

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